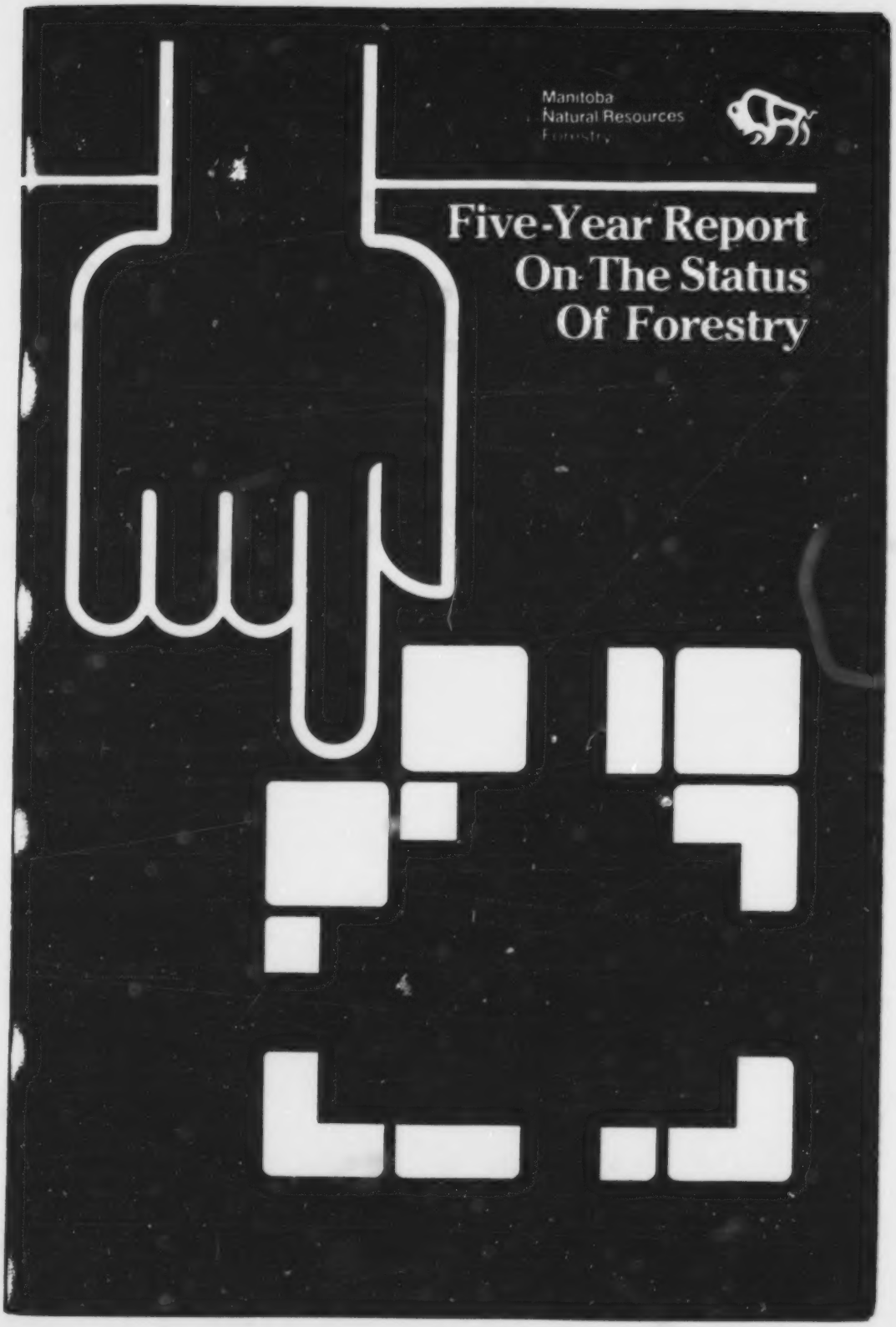
Manitoba
Natural Resources
Forestry
Five-Year Report
On The Status
Of Forestry

Five-Year Report on the Status of Forestry For the Year Ending March 31, 1986 For Presentation to the Legislature Manitoba Natural Resources

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To The Honourable Leonard Harapiak
Minister
Natural Resources

Sir:

I am pleased to present the first Five-Year Report on the Status of Forestry to the Legislature. It includes all aspects of the administration of the Forest Act by Natural Resources for the period ending March 31, 1986. It contains a review of the status of forestry and an assessment of forestry management programs.

R.L. (Nick) Carter,
Deputy Minister
Natural Resources

To His Honour
The Honourable Dr. George Johnson
Lieutenant Governor of the Province of Manitoba

Your Honour:

It is with great pleasure that I present to you the first Five-Year Report on the Status of Forestry to the Legislature.

This Report includes all aspects of the administration of the Forest Act by Manitoba Natural Resources for the period ending on March 31, 1986.

Yours truly,

Leonard Harapiak
Minister

Five-Year Report On The Status Of Forestry

Introduction:

This is the first Five-Year Report On The Status Of Forestry presented to the Province of Manitoba. This report contains details of the responsibilities of the Forestry Branch, the mandate of the 20-Year Forest Management Plan 1981-2000, and a series of charts, tables and graphs designed to illustrate the province's forestry developments.

This report acts as a review of the status of the forest resource in the province. It examines forestry management programs in place and analyzes their effectiveness. Trends in forestry product demands are outlined, and the capability of the forest resources in meeting these demands is evaluated.

Forestry Branch:

The Forestry Branch, established in Section IV of the Forest Act, is under the direction of the minister of natural resources. It is responsible for administering the Forest Act. The branch is the principal source of expertise in forestry in Manitoba. The branch's general objective is to promote the wise management and use of provincial forest resources to the economic, social and environmental benefits of Manitobans.

The Forestry Branch is comprised of six sections — each responsible for a specific group of activities and duties related to branch operations and forest resource management. The Administration section provides for personnel, budgetary and equipment needs. It provides administrative support to the branch and its various components. The Forest Inventory section maintains an up-to-date inventory of forest resources. Forest Protection develops and implements programs aimed at controlling major insect and disease pests. In carrying out its pest management functions, the section co-ordinates all activities associated with the control of Dutch Elm Disease in 39 municipalities, including the city of Winnipeg. This section also provides planning input and develops initiatives in the control and management of wildfires. Timber Management and Development issues timber sale agreements, licences and permits for harvesting Crown timber, as well as for the use of provincial forest land. This section is also responsible for commercial and industrial forestry development. It provides government input on national and inter-provincial issues, such as United States lumber counterveiling actions. The Silviculture section is responsible for the provincial planning, development and implementation of forest renewal and stand tending programs. The operation of both provincial forest nurseries comes from this section. The Field Operations section includes five regional offices responsible for on-site management and implementation of forestry programs and projects. (See the Organizational Chart at the back of this book.)

The Forestry Branch plays a significant role in the economic development of the province. At the community level, the branch supports and promotes forest harvesting, manufacturing operations through long-term planning and forest management efforts. Providing adequate

forest cover for recreation and providing timber supplies to meet subsistence and domestic needs are other significant roles of the branch. Responsibilities of the branch have been set down by Manitoba Natural Resources in a series of roles and missions statements. They are as follows:

1. to ensure that the Crown-owned forests are properly managed in order to provide an adequate resource base for existing and future harvest operations, as well as an adequate forest cover for other uses;
2. to prevent widespread tree mortality and timber loss by providing a level of forest protection commensurate with the value at risk;
3. to manage and allocate forest resources in a manner which attempts to optimize the long-term social and economic benefits for Manitobans;
4. to ensure that all forest harvesting operations are carried out in a manner which minimizes losses and environmental damage;
5. to allow other resource opportunities within designated forestry lands, where the provision of same complements, without conflicting with, existing or future forest harvesting operations; and
6. to work co-operatively with other branches, departments, outside agencies and forest users in planning and managing forestry programs.

These branch roles form the basis of a series of economical and social objectives. They are as follows:

1. to maintain an up-to-date inventory of forest resources within the province;
2. to foster and promote increased utilization of commercial forest resources within the province;
3. to ensure that forest resources are managed and utilized on a sustained yield basis;
4. to ensure that silviculture and regenerative measures are developed and implemented in order to maintain or increase an improved supply of standing timber;
5. to ensure that the Crown obtains a fair return for the use of its forest resource;
6. to promote the rational utilization of the forest resource in Northern Manitoba by assisting native northerners in identifying and developing commercial uses;
7. to provide security of tenure which enables users to earn a reasonable return on their investment and time, provided that department terms, conditions and performance criteria are met; and
8. to ensure that where possible, stands of timber are available to meet the subsistence and domestic needs of individuals or communities, particularly in remote northern areas.

In order that these objectives be met the branch decided in 1981 that a plan of action was needed. It was an important turning point relative to the future of the forestry sector in Manitoba. As a result of that decision a 20-year operational strategy was created.

The 20-Year Forest Management Plan, 1981-2000

On December 31, 1981 the Forestry Branch and Forestal International, a forestry consulting firm, completed the 20-Year Forest Management Plan for Manitoba. The financial support for the project was provided jointly by the federal and Manitoba governments under the Western Northlands Subsidiary Agreement.

The plan is a prescription for sound and responsible management of the province's forest resources to the year 2000. It is a blueprint for forest utilization, industrial development, road access, sophisticated forest monitoring, improved fire management, forest renewal and developing tending programs. Five-year assessments on the status of the resource are an integral part of the plan.

The year ending March 31, 1986 marks the completion of the first five-year period of the 20-Year Forest Management Plan. Consistent with the desire of the branch to follow the prescriptions set out in the plan was the passing of a statute, Bill 45 on August 14, 1983, which is an act to amend the Forest Act. It requires the minister to table in the Legislature a Five-Year Report on the Status of Forestry, which reviews the effectiveness of forestry programs, analyzes trends and the demand for the forest resource, as well as the resource's capability of meeting the anticipated demands. This report satisfies that requirement.

Significant Events

Since the completion of the 20-Year Forest Management Plan, a number of significant events have occurred. Of note is the signing of the Canada/Manitoba Forest Renewal Agreement on March 15, 1984. The joint responsibility for increasing the level of forest management to ensure the supply of wood in the province was one of the major points addressed in the plan. The five-year, $27.2-million agreement met those concerns.

Another significant decision took place when the Government of Manitoba added an additional $15.8 million from the Jobs Fund Sectoral Project for the same five-year period. The Jobs Fund Sectoral Project in Forestry and the Canada/Manitoba Forest Renewal Agreement are described in greater detail in subsequent sections of this report.

The signing of the Forest Renewal Agreement between Manitoba Natural Resources and Manfor Ltd. on February 14, 1984 is also noteworthy. Under this agreement, Manfor Ltd. assumes the responsibility for carrying out forest renewal on all lands harvested by the company under its annual operations. By 1988, 80% of the areas harvested annually, will be treated, and by 1990 all cutover lands harvested annually under the company's operations will be treated by some form of renewal activity.

The Abitibi-Price Inc./Manitoba Forest Management Licence Agreement was signed in May, 1979, retroactive to January 1 of the same year. The agreement has since been implemented efficiently and satisfactorily. Under this agreement, Abitibi has responsibility for the full utilization of the forest resources within the licenced area, including the allocation of timber to other parties. During the five-year review period, Abitibi has met the forest renewal requirement of the licence agreement in an exemplary way. The agreement is evergreen, however a review is required at the end of each five-year period. If the company has met all of the terms and conditions of the agreement, then an additional five-year period will be added. This would make the agreement last a full 20 years. The first five-year period ended December 31, 1983. A review of the activities of the company for the first five years indicated that the agreement should be extended for a further five-year period, and was subsequently approved.

Another notable event was the installation and full operation of the Forestry Geographic Information System. For the first time the Forest Inventory Program may be updated on a continual basis. Previously, the province's forests had to be re-inventoried on an average of every 18 years, depending upon the forest area and level of activity. Each re-inventory was just a snapshot overview of the forest. The resulting data soon became dated. The Geographic Information System, known as FORIST, annually measures forest change and growth so that the inventory of any particular forest area entered into the FORIST system is current. This system also has the capability of measuring impacts of a variety of events before they actually are put into place, or occur naturally.

In the area of forest protection, a great deal of emphasis during the last five years has been on priorizing areas in which immediate fire control action must be taken. Pest management activities in the field have been actioned through the realignment of forest protection staff to monitor and control such organisms. This realignment program has been implemented both in the province's forest lands and at the two nurseries at Hadashville (Pineland Provincial Forest Nursery) and The Pas (Clearwater Provincial Forest Nursery).

The Timber Quota System, initiated in 1965, revamped in 1980 and placed on a 10-year evergreen cycle, underwent its first five-year review during the 1985/86 operating year. The

decade-long five-year evergreen cycle is provided to ensure continuity of the system from one five-year period to the next. It allows for changes to be made and implemented subsequent to five-year reviews, while also providing for a five-year termination period. The timber stumpage pricing system was fine-tuned, to incorporate and accurately reflect national forest product price indexes for lumber and pulp. It also took into consideration the pressure on the resource.

Primarily, as a result of the Canada/Manitoba Forest Renewal Agreement and the Jobs Fund Sectoral Project, significant advances were made in the field of nursery management, forest genetics and tree improvement activities. Both the Clearwater and Pineland Provincial Forest nurseries were expanded, in both the production of bareroot and container grown seedling stocks. New handling systems were developed and installed. New techniques and facilities were developed to aid in the growing of genetically superior seedling stocks. This reduces the growing time and improves the quality of the mature trees. Increased planting programs and stand-tending activities resulted in a significant rise in casual employment opportunities. Long-term benefits of the expanded programs include sustained and increasing wood supplies to meet the projected 2% per year expansion of the forest industry over the next 20 years.

Administration

The Administration section of the Forestry Branch holds responsibility for providing a system of financial control and accountability to meet statutory and regulatory requirements. They provide general administrative support services, including material and records management, building maintenance, secretarial/office services and vehicle fleet management.

The Administration section is responsible for co-ordinating branch budget details in excess of $14 million. (See Chart 1.) They also oversee all personnel and payrolls for a staff complement of 83 permanent staff members, 14 term positions and 500 departmentals (seasonal/non-seasonal). (See Chart 2.)

CHART 1
BRANCH BUDGET

(In $000*)

SECTION	SALARY	OTHER EXPENDITURES	TOTAL
Administration	$183.8	$64.9	$248.7
Inventory	565.7	148.3	714.0
Timber Management	246.3	52.7	299.0
Silviculture	239.8	886.7	1126.5
Protection	746.9	1259.5	2006.4
Regional Management	695.1	230.7	925.8
Northern Development	460.2	1548.6	2008.8
	$3137.8	$4191.4	$7329.2
Ongoing Capital			$30.0
			$7359.2
Jobs Fund Sectoral	248.6	$3043.6	$3292.2
Canada/Manitoba Forest Renewal Agreement	27.5	3395.0	3422.5
		Total Branch Budget	$14073.9

*1985/86

CHART 2
BRANCH STAFF NUMBERS*

SECTION	PERMANENT	TERM	PROFESSIONAL	TECHNICAL	SUPPORT
Administration	6	0	1	0	5
Inventory	17	0	4	10	3
Timber Management	9	0	2	1	6
Silviculture	7	0	4	2	1
Forest Protection	15	1.19**	2	9	5.19
Regional Management	22	0	8	14	0
Northern Development Agreement	7	.26	2	2	3.26
Total	83.0	1.45	23	38	23.45
Jobs Fund Sectoral	0	11	1	10	0
Canada/Manitoba Forest Renewal Agreement	0	1	1	0	0

*As of September 1986.

**The figure to the right of the decimal refers to the number of weeks. i.e. 1.19 = 1 full staff year and 19 staff weeks.

The Canada-Manitoba Forest Renewal Agreement has resulted in additional federal and provincial government funding, such as the Jobs Fund Project for Forestry. Statistical data, monthly and quarterly reports and cash flows are required by the Jobs Fund Board on all projects. These are submitted through this section.

Besides providing assistance in branch policy development, this section ensures the provincial Crown forest lands are managed according to the Forest Act and Regulations. It also maintains and improves the Forest Act and Regulations, initiating the development of provincial forests.

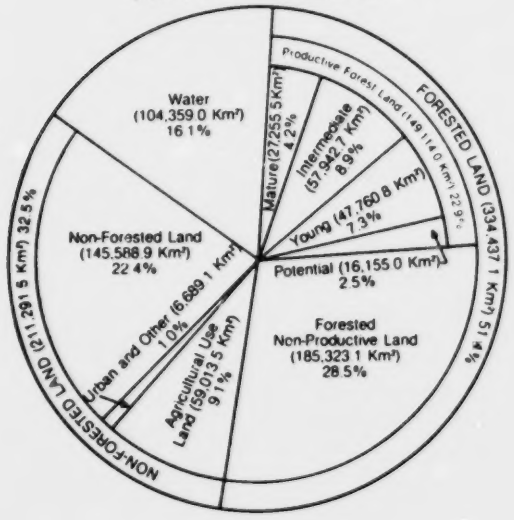
Forest Inventory

Manitoba ranks fifth to other Canadian provinces and territories in forest area and merchantable volume of timber. The 334.4 thousand square kilometres of forest land, which includes productive and non-productive forest, occupies 51% of the province's total area. (See Figure 1.) The 746 million cubic metres of merchantable wood volume is made up of 463 million cubic metres of softwood, and 283 million cubic metres of hardwood species.

For forest classification purposes, Manitoba has been subdivided into two major areas — the Tundra Transition Zone and the Forest Zone. The Tundra Transition Zone covers 228,710.8 square kilometres, essentially occupying the northern 35% of the province. This zone offers minimal possibilities for commercial forestry use, within acceptable forest rotation ages. The forest cover will remain as a valuable protective cover for the land and provide for the subsistence needs of area residents.

The Forest Zone covers 387,362.9 square kilometres and occupies the southern 65% of the province. This zone contains all the productive forest land, as well as Manitoba's agricultural land base.

FIGURE 1
MANITOBA
AREA OF PRODUCTIVITY CLASS FOR FORESTRY
(TOTAL AREA = 650,087.6 Km²)


Productive Forest Land (149,114.0 Km²) 22.9%
FORESTED LAND (334,437.1 Km²) 51.4%
Mature (27,255.5 Km²) 4.2%
Intermediate (57,942.7 Km²) 8.9%
Young (47,760.8 Km²) 7.3%
Potential (16,155.0 Km²) 2.5%
Forested Non-Productive Land (185,323.1 Km²) 28.5%
Water (104,359.0 Km²) 16.1%
Non-Forested Land (145,588.9 Km²) 22.4%
Urban and Other (6,689.1 Km²) 1.0%
Agricultural Use Land (59,013.5 Km²) 9.1%
NON-FORESTED LAND (211,291.5 Km²) 32.5%

For forest management purposes the Forest Zone has been subdivided into 65 Forest Management Units, which aggregate into 10 forest sections. (See Figure 2.) The Forest Zone has a total area of 38.7 million hectares. (See Tables 1 and 2.) Thirty-eight percent, or 14.9 million hectares, of this is considered to be productive forest. This area provides the wood volumes for harvest potential on a sustained yield basis. The availability of wood volumes from the productive forest land is a critical component of forest management decision making.

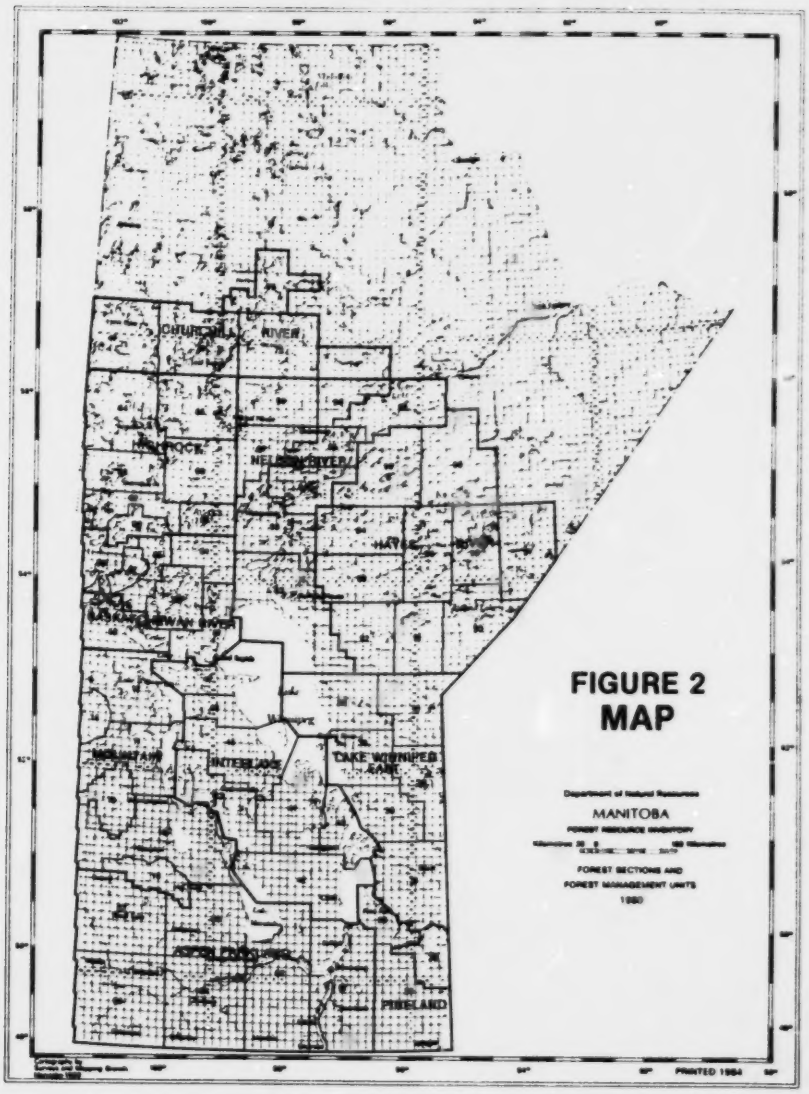


FIGURE 2
MAP

TABLE 1
MANITOBA FOREST ZONE
MERCHANTABLE VOLUME SUMMARY

(Volume in cubic metres)

	SOFTWOOD	HARDWOOD	TOTAL	PERCENT	
Provincial Crown — Closed	12,621,580	7,137,810	19,759,390	—	3
Provincial Crown — Open					
Prov. Forest, Forest & Park	201,101,870	110,743,210	311,845,080	51	—
Forest Management Licence	20,739,770	9,795,020	30,534,790	5	—
Integrated Wood Supply	28,656,690	14,385,960	43,042,650	7	—
ManFor	171,320,080	46,311,000	217,631,080	36	—
International Nickel	2,454,980	878,480	3,333,460	1	—
Community Pasture	93,380	1,886,640	1,980,020	—	—
Sub-Total — Open	424,366,770	184,000,310	608,367,080	100	81
Provincial Crown — Restricted	8,356,560	6,899,990	15,256,550	—	2
Sub-Total — Provincial Crown	445,344,910	198,038,110	643,383,020	—	86
Federal Crown	10,662,230	25,694,960	36,357,190	—	5
Municipal	960	27,410	28,370	—	—
Private	4,045,770	52,690,970	56,736,740	—	8
Local Government District	488,510	3,259,530	3,748,040	—	—
Indian Reserve	2,364,280	3,007,100	5,371,380	—	1
Total Forest Zone	462,906,660	282,718,080	745,624,740	—	100
Percent	62	38	100		

TABLE 2
MANITOBA ANNUAL ALLOWABLE CUT BY SPECIES WORKING GROUP PROVINCIAL CROWN LAND — OPEN

(Volumes in thousands of cubic metres per year)

Species	Volume	% of Softwoods	% of Hardwoods	% of All Species
Jack Pine	2,462	41.6	—	29.6
Black Spruce	2,704	45.7	—	32.5
White Spruce	589	9.9	—	7.1
Balsam Fir	130	2.2	—	1.5
Tamarack Larch	28	0.5	—	0.3
Eastern Cedar	5	0.1	—	0.1
Total Softwoods	5,918	100.0	—	71.1
Trembling Aspen	1,869	—	77.8	22.5
Balsam Poplar	264	—	11.0	3.2
White Birch	241	—	10.0	2.9
Other Hardwoods	29	—	1.2	0.3
Total Hardwoods	2,403	—	100.0	28.9
Total	8,321	—	—	100.0

Productive Forest Land Area

Over 90% of the total productive forest land is owned and managed by the province. (See Figures 3 and 4.) Of the remainder, approximately 7% is owned privately, and the rest is located on Federal Crown, municipal, local government district and Indian Reserve lands.

Approximately 96% of provincially owned productive forest land is considered open to harvesting activities. (See Figure 5.) Since 1981, that area has been reduced by about 626,000 hectares or 5%. All of the reductions which occurred in this five-year period have been in the forest sections where established forest industries exist. This makes the impact of the decrease more significant when forest sections without established forest industries are removed from the calculation. The total productive forest area open to harvesting is now 12.9 million hectares.

At the time of inventory, 1.5 million hectares of Provincial Crown productive forest land was classified as having potential or as supporting no identifiable, established tree cover. The comparable figure from 1981, 2.1 million hectares, indicates a favorable 29% reduction. This is attributed mostly to natural regeneration after major wildfires. But, it has also been supplemented by provincial and industrial reforestation activities.

The productive forest land base of the Forest Zone has been classified based on current forest cover or expected forest cover in the case of potential areas. (See Figure 6.) Black spruce predominates 39%, jack pine on 32%, trembling aspen on 24% and white spruce on 2%.

FIGURE 3
SOFTWOOD/HARDWOOD MAP

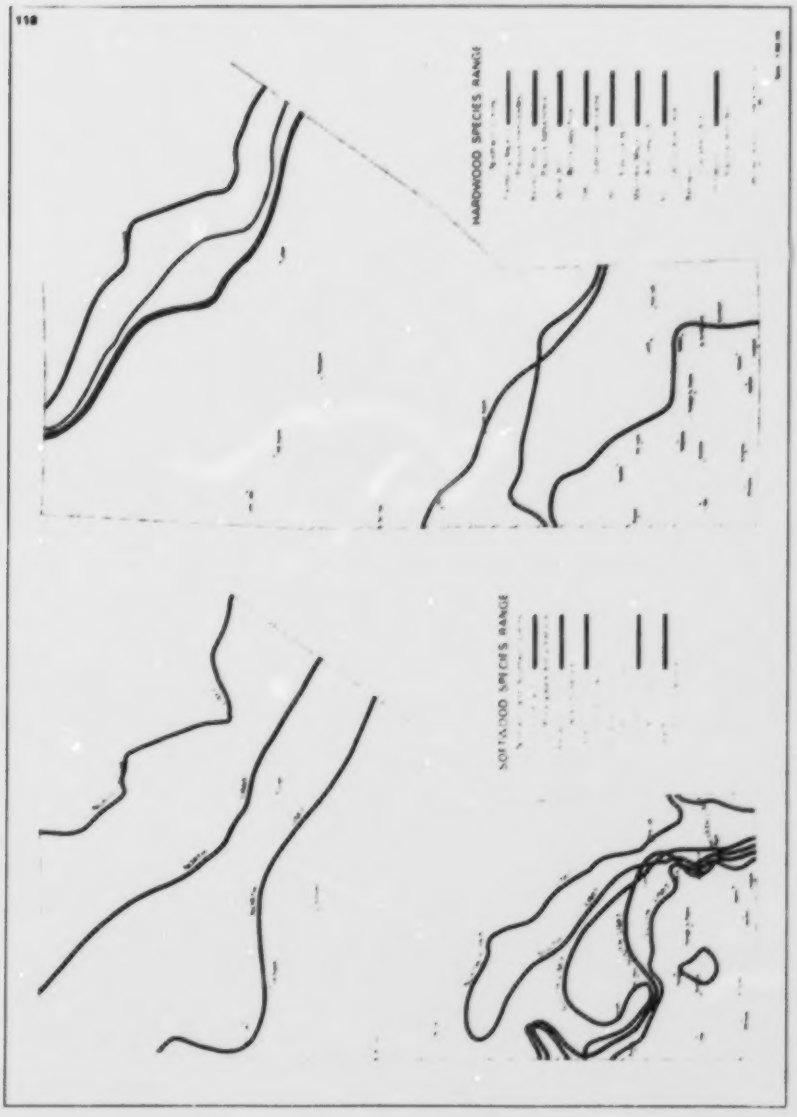


FIGURE 4
MANITOBA FOREST ZONE
PRODUCTIVE FOREST LAND BY OWNERSHIP

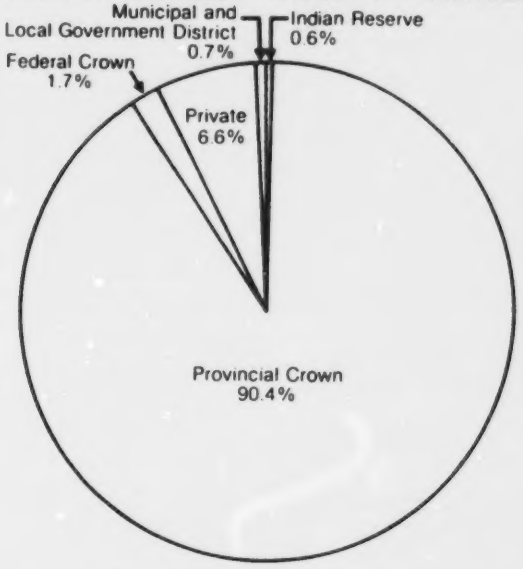


FIGURE 5
MANITOBA FOREST ZONE
PROVINCIAL CROWN PRODUCTIVE FOREST LAND

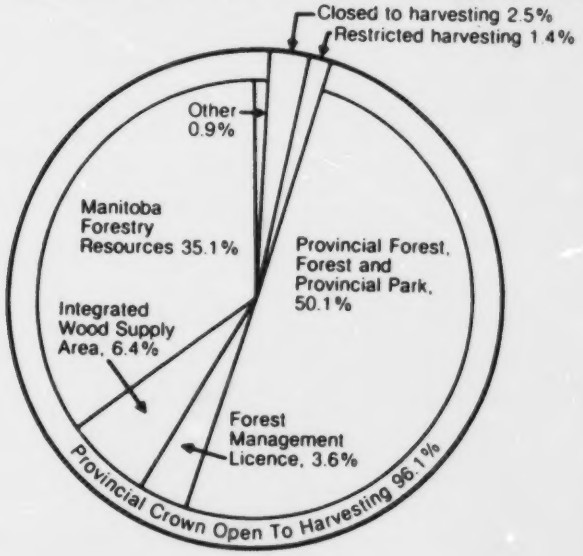
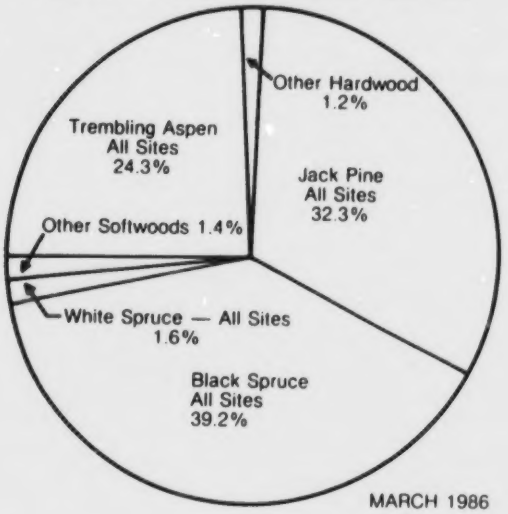


FIGURE 6
PRODUCTIVE AREA SUMMARY
BY WORKING GROUPS
MANITOBA'S FOREST ZONE



MARCH 1986

Merchantable Volume

The total merchantable volume found in the province's Forest Zone is estimated to be 745.6 million cubic metres. (See Table 1 and Supplementary Data in Volume 2.) This figure is based on a minimum tree diameter of nine centimetres taken 1.3 metres from the ground, a minimum top diameter of 7.6 centimetres and a stump height of 30 centimetres.

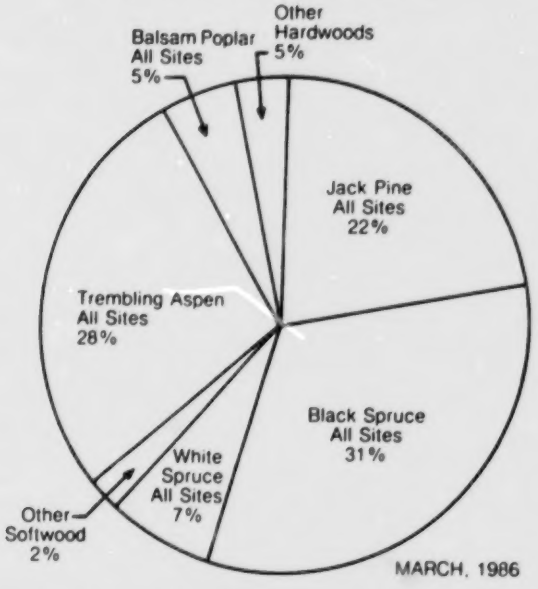
Softwood (coniferous) species make up 62% of the total volume, while hardwood (deciduous) species make up the remaining 38%. Provincial Crown land supports 86% of the total volume; 81% of that is located in the Open Zone.

The summaries prepared in 1981 were for net merchantable volume. Since then, additional large areas have been inventoried to produce more accurate and comprehensive volume estimates. The differences between the two sets of summaries, however, make comparisons difficult. Merchantable volume of all species in Manitoba is on the rise, with hardwood, primarily trembling aspen, accounting for the greatest increase. The Mountain Forest Section contains the largest merchantable volume of predominantly hardwood species in the province, followed by the Hayes River Forest Section with mainly softwood species.

Black spruce provides 31% of the total provincial volume, followed by trembling aspen at 28% and Jack pine with 22%. (See Figure 7.)

On a provincial average for the Forest Zone, 87% of the softwoods and 70% of the hardwoods have diameters less than 26 centimetres. This allows for new sawmill technology that can process smaller trees over 19 centimetres in diameter. The resulting 66% of the softwoods and 42% of the hardwoods, which are less than this size, dictate the type of forest industry which Manitoba's forest can support. Mature trees of sr all diameter must be acceptable as raw material for the final product.

FIGURE 7
VOLUME SUMMARY BY WORKING GROUPS
MANITOBA'S FOREST ZONE


Other Hardwoods 5%
Balsam Poplar All Sites 5%
Jack Pine All Sites 22%
Trembling Aspen All Sites 28%
Black Spruce All Sites 31%
White Spruce All Sites 7%
Other Softwood 2%
MARCH, 1986

The productive forest area and merchantable wood volume on private land in Manitoba has now been estimated by surveys carried out over the past five years. Over 55% of the private productive forest area of 989,000 hectares and 58% of the total private wood volume of 56.7 million cubic metres is located in the Aspen Parkland Forest Section. Hardwood species make up 93% of the merchantable volume on private land.

Annual Allowable Cut

Annual Allowable Cut (AAC) volumes are calculated for each Forest Management Unit on a sustained yield basis. Regulation through the AAC ensures a continuous supply of timber volume to support established or potential forest industries in the province. The current AAC from Provincial Crown lands — Open Zone is 8.32 million cubic metres per year, of which 5.92 million cubic metres is softwood and 2.4 million cubic metres is hardwood species. (See Tables 2, 3, and 4.)

The Hayes River Forest Section accounts for the largest percentage with 24% of the available harvest volume. This forest section is currently inaccessible to forest operations and supports only local subsistence requirements. The Aspen Parkland Forest Section provides the smallest percentage, 1% of the available AAC, as most of the available wood volume in this section is located on private land.

Black spruce and jack pine make up 62% of the total AAC, followed by trembling aspen which makes up a further 22% of the total available harvest volume.

Forest inventory programs in the past five years have provided new information for 25 Forest Management Units in five forest sections. As a result, the AAC for Manitoba's Open

TABLE 3
MANITOBA ANNUAL ALLOWABLE CUT
BY FOREST SECTION
PROVINCIAL CROWN LAND — OPEN

(Volumes in thousands of cubic metres per year)

Forest Section	SOFTWOODS Volume	%	HARDWOODS Volume	%	TOTAL Volume	%
Aspen Parkland	3	—	65	2.7	68	0.8
Mountain	402	6.8	578	24.0	980	11.8
Pineland	179	3.0	173	7.2	352	4.2
Lake Winnipeg East	788	13.3	269	11.2	1,057	12.7
Interlake	450	7.6	343	14.3	793	9.5
Saskatchewan River	484	8.2	119	5.0	603	7.3
Highrock	968	16.4	250	10.4	1,218	14.6
Churchill River	82	1.4	7	0.3	89	1.1
Nelson River	952	16.1	248	10.3	1,200	14.4
Hayes River	1,608	27.2	352	14.6	1,960	23.6
Total	5,916	100.0	2,404	100.0	8,320	100.0
Percent		71.1		28.9		100.0

TABLE 4
HARVEST REVENUE

YEAR	TOTAL HARVEST (Cubic Metres)	REVENUE[1]	$/m³
1971/72	1,333,426	$ 697,703.88	0.523
1972/73	1,571,544	811,851.80	0.517
1973/74	1,588,759	843,081.37	0.531
1974/75	1,932,383	924,586.53	0.478
1975/76	1,851,552	1,739,308.27	0.834
1976/77	1,519,998	1,345,601.02	0.885
1977/78	1,646,562	1,176,078.00	0.714
1978/79	1,714,300	1,292,180.63	0.754
1979/80	1,940,082	1,624,290.86	0.837
1980/81	2,320,031	1,908,776.72	0.823
1981/82	1,782,078	1,792,589.82	1.006
1982/83	1,478,092	1,383,734.70	0.936
1983/84	1,500,332	1,964,510.80	1.389
1984/85	1,673,031	2,302,339.73	1.376
1985/86	1,688,897	2,473,081.25	1.464

[1]Dues in respect of Crown Timber harvested.

Zone has shown an overall 9% increase to 8.32 million cubic metres per year (See Table 3), up from 7.86 million in 1979.

Although the trend for annual harvest volumes for the entire forest zone has been upward, specific forest management units and forest sections have required reductions in available volumes for harvest. The most frequent cause for reduction has been wildfire losses, however, withdrawals of productive forest land from harvesting activities in the Lake Winnipeg East Forest Section have resulted in an overall 8% decrease in annually available volumes of all species. More critically, it has amounted to a 13% reduction in the availability of spruce and fir volumes to establish industry.

Current Wood Surpluses

Current wood surpluses are defined as the difference between the annual allowable cut and the current level of utilization as indicated by the average annual volume of roundwood extracted during the five-year period from 1981-1985. On Provincial Crown land — Open Zone as a whole (See Volume 2), 80% of the available, annual allowable volume is not being harvested. More specifically, the harvest could be increased 5.1 times - 4.1 times in the case of softwoods and 13.6 times for hardwoods.

The available surpluses would change significantly if the generally inaccessible areas of Churchill, Hayes River and Nelson River Forest Sections are deleted from the surplus calculation. Even then, in the remaining more accessible areas, less than 40% of the annual allowable harvest is currently being utilized. Only in the Pineland and Mountain Forest Sections, and individual Forest Management Units in the Lake Winnipeg East Forest Section, is the actual cut approaching the allowable level for softwoods. Even there, the hardwood cut is a fraction of what is allowable. A trend of a 12% increase towards expanded utilization of the hardwood allowable cut has been noted in the Pineland Forest Section in the past five years. This increase trend in hardwood utilization is expected to continue in the Pineland Forest Section and begin to expand into other forest sections over the next five-year period.

Wildfire Losses

The major source of loss in forest volume, for which statistics are available, is wildfire. Beginning in 1976, fire losses in area and volume have been interconnected with the forest inventory data base to provide statistics relating to losses incurred. These are directly comparable to the original estimates of area and volume available. The information has been summarized for each Forest Management Unit to determine if safety margins built into annual allowable cut calculations have been exceeded, and if there is a need for downward revision of available volumes.

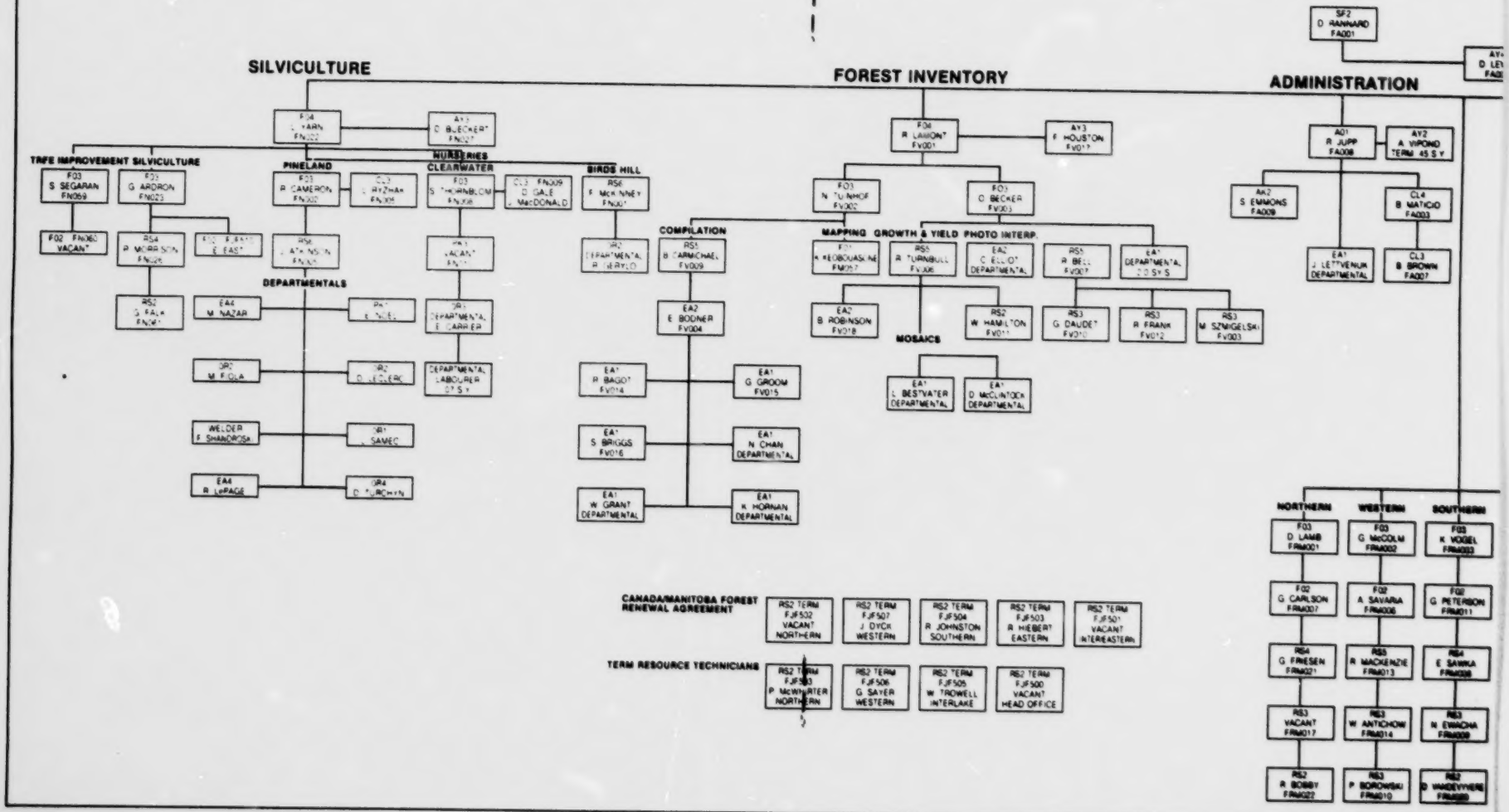
Area losses over the past 10-year period (See Volume 2) have averaged 158,000 hectares per year, of which 90,000 hectares per year have been productive forest land. In the past five-year period, equivalent losses have totalled 121,000 hectares per year, of which productive forest land losses have been 71,000 hectares per year.

Volume losses over the 10-year period have averaged 4.7 million cubic metres per year, with the Lake Winnipeg East Forest Section accounting for approximately 28% of the average losses. (See Volume 2.) Volume losses over the last five-year period averaged 2.5 million cubic metres per year, a significant reduction in volume losses. The Lake Winnipeg East Forest Section again accounts for the largest portion of volume losses, averaging 36% of the total for the last five years.

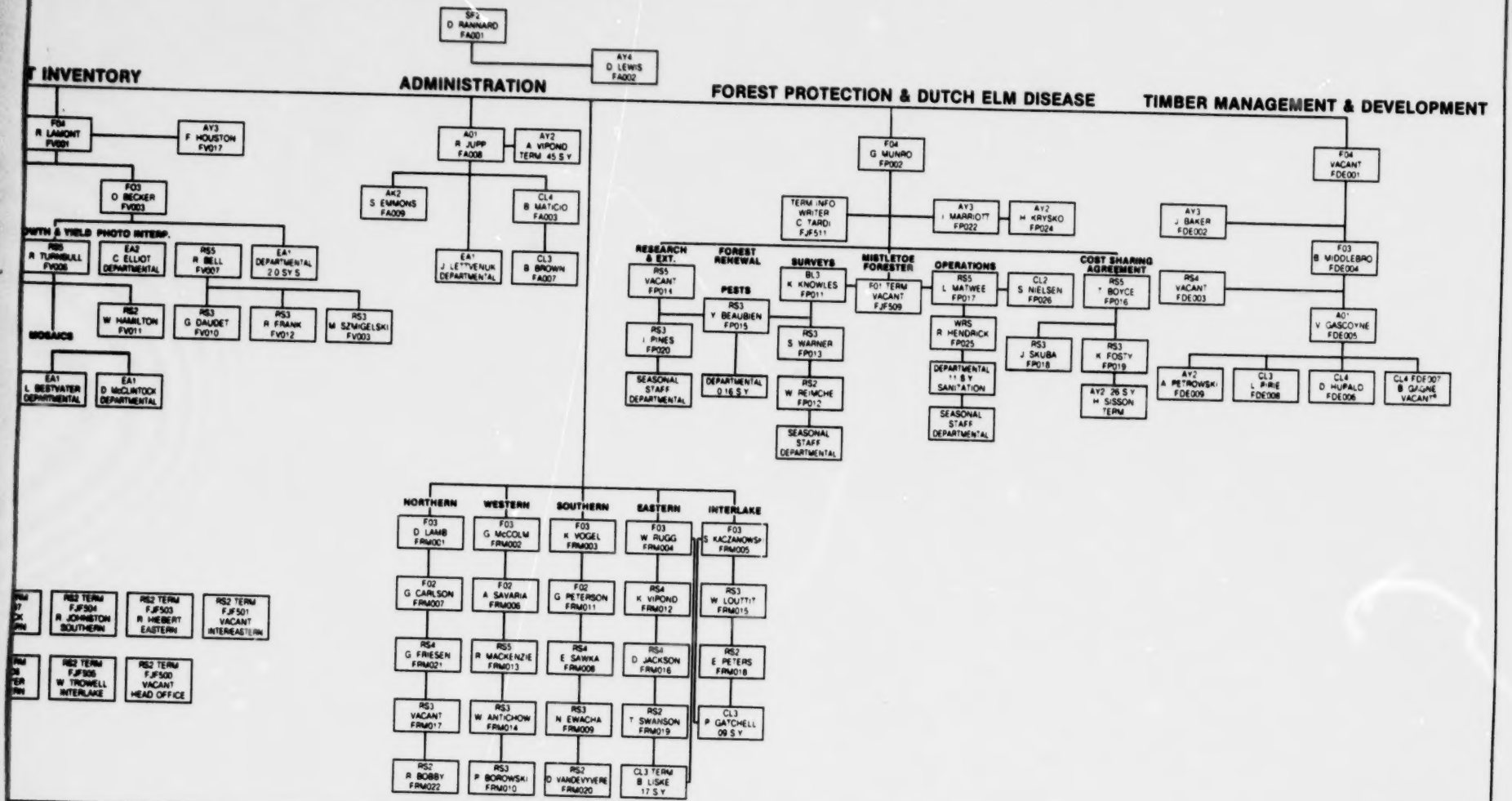
Impacts of fire in the Lake Winnipeg East, Highrock and Mountain Forest Sections are of particular concern, as these forest sections provide major portions of the wood supply for Manitoba's forest industries. In the Mountain Forest Section losses incurred were primarily a result of one major forest fire in the Porcupine Provincial Forest in 1980. Losses in this forest section in the past five years have been much lower. Wildfires in the Lake Winnipeg East and Highrock Forest Sections, due primarily to lightning, have occurred more frequently resulting in consistently high losses.

In the past 10-year period, the highest volume losses occurred in 1980 when 21.8 million cubic metres of wood volume were lost. The second most disastrous year was 1981 when a total of 6.9 million cubic metres of wood volume were lost to fire. Total losses in 1983 were 3.5 million cubic metres, of which 3.3 million or, 94% of the loss, occurred in the Lake Winnipeg East Forest Section.

FORESTRY BRANCH ORGANIZATION CHART



FORESTRY BRANCH ORGANIZATION CHART



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Forest Balance

Forest balance is defined as the difference between growth and all measured depletion sources or drain on the forest resources (See Volume 2). Drain due to harvesting is based on the average cut over the five-year period 1981-1985. It is the merchantable removals exclusive of logging residues and scaling shortfalls. Drain due to wildfire is the average merchantable loss over the period 1981-1985. No reduction has been made to allow for volumes of fire-killed timber that were salvaged.

Estimates of forest balance are considered to be indicative only. More precise estimates will be possible as more accurate data on growth, insect and disease losses, and logging residue losses become available.

Estimated softwood species drain represents only 34% of total growth for the province. It ranges from a low of 12% in the Nelson River Forest Section, to a high of 77% in both the Pineland and Lake Winnipeg East Forest Sections. Hardwood species drain averages 12% for the province and only in the Pineland Forest Section does it exceed 25%. (See Volume 2.) Jack pine drain is approaching the maximum acceptable level in the Pineland Forest Section, and spruce drain is at maximum in both Pineland and Lake Winnipeg East Forest Sections. This represents a highly desirable trend for Manitoba forest utilization.

The Forest Geographic Information System (FORIST)

As part of the Canada/Manitoba Forest Renewal Agreement, the purchase of required and available computer programs and hardware was identified as a solution to the increasing problem of forest data analysis and data management.

Cost-shared funding was made available to purchase a geographic information system for forestry applications, and to operationally integrate the new system with the 4300 forest cover map sheets and 65 Forest Management Unit data bases now in existence.

FORIST was installed and turned over to the Forestry Branch on August 30, 1985. The first portion of the data base to be operationally installed in the new system was the Pineland Forest Section. Subsequent areas will be loaded on the basis of data age and area importance.

Area Change

The Area Change Program is a computerized data recording system implemented by the branch in the late 1970s. The objectives of the program are to record changes to the forest land base and to incorporate these changes into the annual allowable cut calculations. It also aims to provide statistical data for informational report requirements. These changes are reported on an annual basis by the regional branch office in the case of timber depletion and silviculture activities, and by the Regional Services Branch for forest fire depletion. Both regional and head office staff foresee multiple uses for this program, with its importance increasing in the future.

Timber Management

Timber Dues

During the period covered by this report, provincial timber dues were adjusted annually, according to the Forest Products Price Index (FPPI). This was developed for Manitoba in 1980 in concert with a new dues structure. An annual price index weighted by provincial production of pulpwood and lumber is used to adjust the dues level. As well, every five years the entire timber dues structure is reviewed and changed if warranted.

A five-year review was undertaken in 1985. It recommended that the jack pine pulpwood rate concession be removed, and the more valuable hardwood rates be increased to softwood levels. This was proposed in the spring of 1985 and instituted on October 1 of the same year. The originally planned FPPI adjustment to the dues schedule for early in 1985 was waived for the 1985/1986 season. Table 4 depicts the harvest levels, Crown dues collected from timber changes and the average cubic metres dues rate since 1971/1972.

Roundwood Measurement Training

In the previous five years, the branch has held four scaling licence certification courses and two metric refresher scaling training courses. The refresher courses are two and one-half days, for groups of 16, and normally precede the full certification course. This regular course, which runs for a full week, had 83 candidates for the four courses. All courses were held at Swan River with roundwood field measurements in the local sawmill yards. Candidates come from the forestry industry, governments, community wood harvesting programs, educational institutions, unions, Indian bands and the general public. The pass mark for a regular Manitoba Scalers Licence is 65%. Interim licences are granted upon request for one year to candidates achieving a mark between 50% and 64%.

Timber Quota System

The revised timber quota system continued, falling under scrutiny during the first five-year review held on April 1, 1985.

Originally, quotas granted in 1965 ran for 15 years and ended in 1980. Those holding quotas in 1980 received extended quota cutting rights for 10 years, to be reviewed at five-year intervals. If utilization levels were met, an additional five years would be added to the quota commitment. Those who use their timber permit three or more times are entitled to permit quota renewals annually for the next five years. It would then be reviewed again.

Since the inception of the program, the number of timber permit quotas have been reduced from 1,895 to 37, a 98% reduction.

Timber sales, however, have a one-year carryover privilege, and as a result the utilization review to determine the next five-year volume entitlement could not begin until April 1, 1986.

Operators who have utilized 80% or more of their softwood or hardwood quota volumes will have five years added to their entitlement. Quotas which were totally inactive will be cancelled. Quotas utilized less than 80% will be adjusted to reflect their five-year average use level, but, will include a 20% safety cap. This means that if a timber sale quota operator

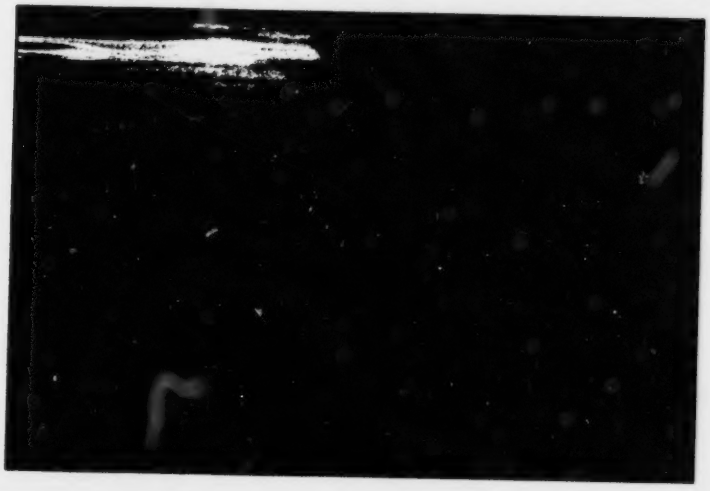


TABLE 5
TIMBER PERMIT AND TIMBER SALE STATISTICS
(Five-Year Summary)

Year	TIMBER PERMITS			TIMBER SALES			Combined Timber Permit & Timber Sale Percent
	No.	Vol. (m^3)	% Prov. Total	No.	Volume (m^3)	% Prov. Total	
1981/82	8,475	143,406	8.0	302	646,345	36.3	44.3
1982/83	9,674	196,340	13.3	326	631,971	42.8	56.1
1983/84	8,174	195,301	13.0	301	627,456	41.8	54.8
1984/85	6,907	169,738	10.2	255	621,273	37.1	47.3
1985/86	6,944	194,752	11.5	252	627,348	37.2	48.7
	40,179	899,537	56.0	1,436	3,154,393	195.2	251.20
	8,035	179,907	11.2	287	630,878	39.0	50.2

only used half of a five-year volume entitlement, eligibility would stand at 70% (50% and 20%) of the volume to harvest for the second five-year period.

Timber Sales and Timber Permits

Timber sales and timber permits are the cutting authorities under which all provincial operators harvest Crown timber. The exceptions are the two major pulp and paper companies. Combined, these permits account for 44% to 56% of the total Provincial Crown land harvest, and represent 200 to 300 commercial operators and several thousand own-use permitees. Table 5 sets out the number of timber permits, timber sales, volume and percentage they represent of the total harvest.

Of note from Table 5 is that the two cutting authorities account for just over half (50.2%) of the five-year Crown land harvest. Also interesting is the almost constant amount harvested by the larger timber sale operators at 630,000 cubic metres.

Trends, Forecasts for Demand and Forest Resource Use

In Manitoba, the forest resources are utilized in three major ways:

1. land alienation
2. destructive utilization
3. constructive or industrial utilization

Forest resource depletion by land alienation means a permanent removal of the timber lands from the allowable cut levels. Most of the major pulp, paper and lumber mills in the province are located in areas where there are well-established agriculture and recreational demands for increased area. This, coupled with various land claims, utility corridors and mounting pressure for increased reserves and boundary sizes, has added substantially to the predicted future timber shortages that were highlighted in the 20-Year Forest Management Plan 1981-2000.

Forest resource depletion by destructive utilization is typically timber loss as a result of fire, insects, disease, wind and drought. Losses as a result of insects, disease and fire are now being assessed with counter measures being developed. These two areas are reported separately in this report. Losses from wind and drought are accepted as they occur. Measures to utilize the destroyed resource are employed whenever possible. Over 750,000 cubic metres of softwood have been salvaged since the devastating Porcupine Mountain fire in 1980. The 1982 wind storm in the south-eastern region of the province has resulted in the salvage of over 180,000 cubic metres of wood. Of the 8.1 million cubic metres harvested in the last five years, approximately one million was salvaged timber.

Constructive or industrial utilization of the forest resource amounted to 8.1 cubic metres of wood. Of this, 61.5% was converted into paper, 29.1% was used as lumber, and 6.4% ended up as fuelwood. A number of other products accounted for the remaining 3%, e.g. railway ties, mine timber, fence posts, rails, utility poles and round timber. (See Table 6.)

Trends in, and forecasts of demands on, the forest resource are not available for the land alienation and the overall destructive timber utilization. Until recently, in the last decade, little attention was paid to these demands on the forest land base. When a major fire such as the one in the Porcupine Mountains in 1980, or the exclusion of timber harvesting as in the Atikaki Wilderness Park changes occur, there are immediate impacts to the allowable harvest levels, operating forestry plans, jobs and the future and the present well-being of the area affected.

The trends and forecasts for the three principal industrial uses of our forest resources — paper, lumber and fuelwood — are encouraging, with prospects for some growth. Manitoba has one of the lowest provincial AAC utilization levels, and as a result is starting to receive

TABLE 6
SUMMARY OF ANNUAL FOREST PRODUCTION BY FOREST PRODUCT

(In Cubic Metres)
1981/82 to 1985/86

Year	PULPWOOD Volume	%	LUMBER Volume	%	FUELWOOD Volume	%	OTHER Volume	%	TOTAL Volume	%
1981/82	1,100,921	61.8	535,034	30.0	88,369	5.0	57,754	3.2	1,782,078	100
1982/83	787,879	53.3	518,062	35.1	111,555	7.5	60,596	4.1	1,478,092	100
1983/84	837,756	55.8	509,476	34.0	102,474	6.8	50,626	3.4	1,500,332	100
1984/85	1,201,970	71.9	330,228	19.7	103,593	6.2	37,240	2.2	1,673,031	100
1985/86	1,065,361	63.1	474,826	28.1	110,561	6.5	38,149	2.3	1,688,897	100

FIGURE 8

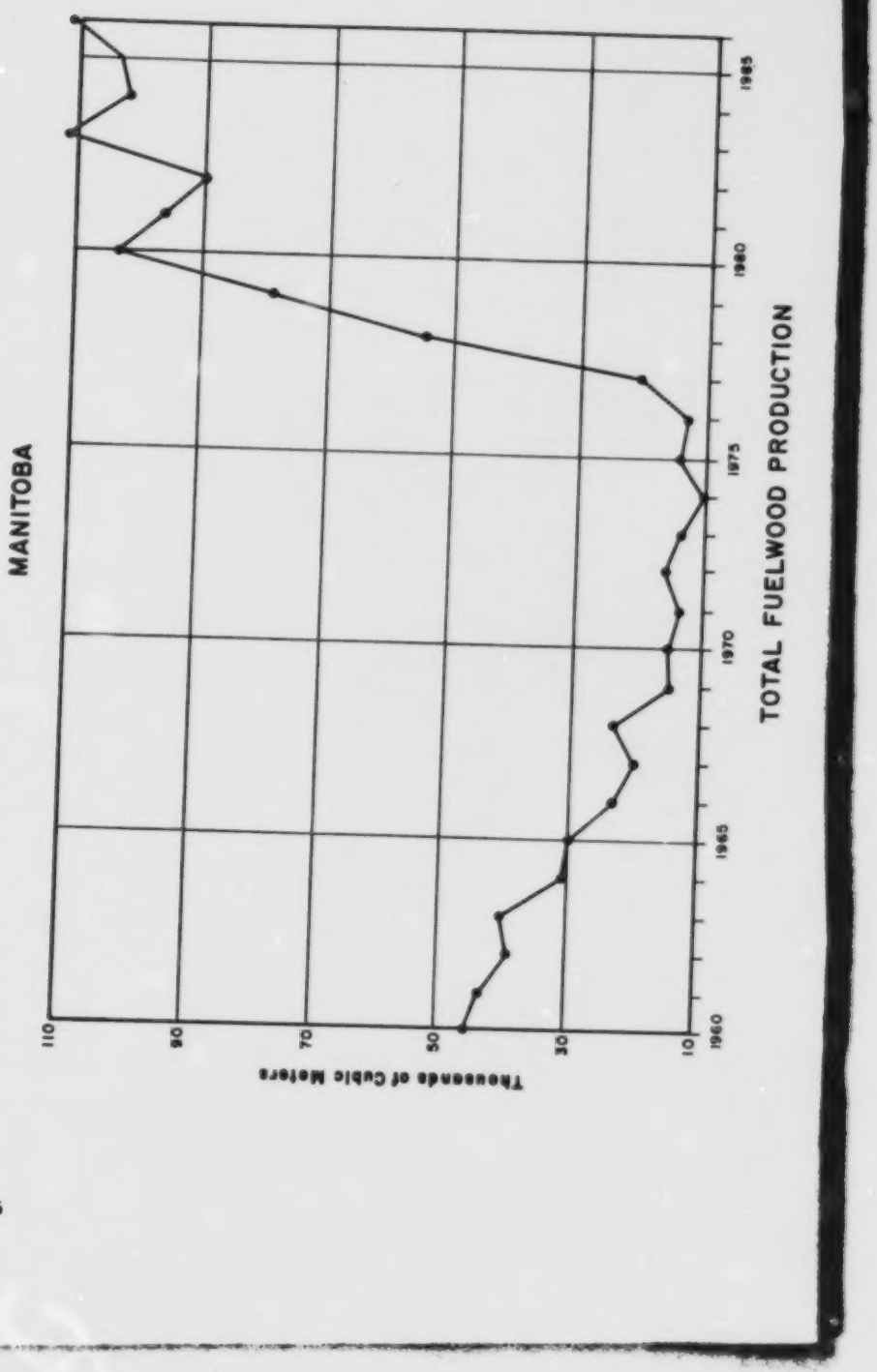

MANITOBA
TOTAL FUELWOOD PRODUCTION
Thousands of Cubic Meters
110
90
70
50
30
10
1960
1965
1970
1975
1980
1985

FIGURE 9

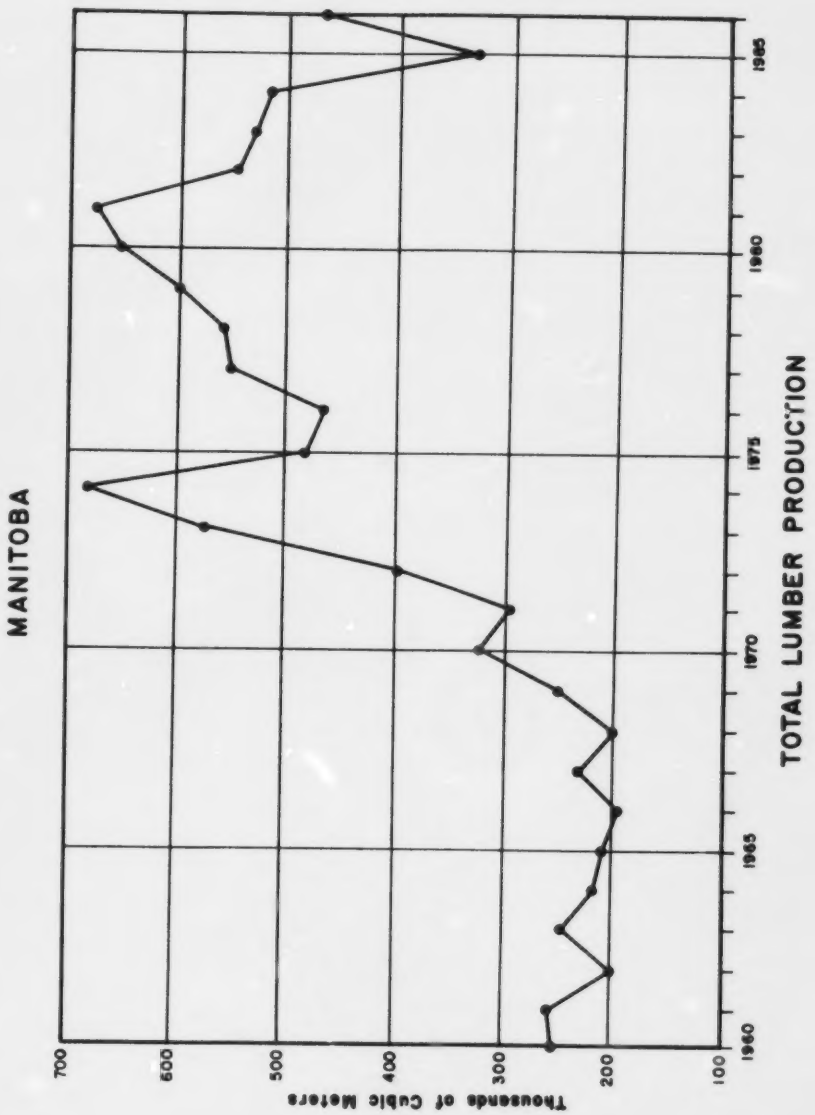
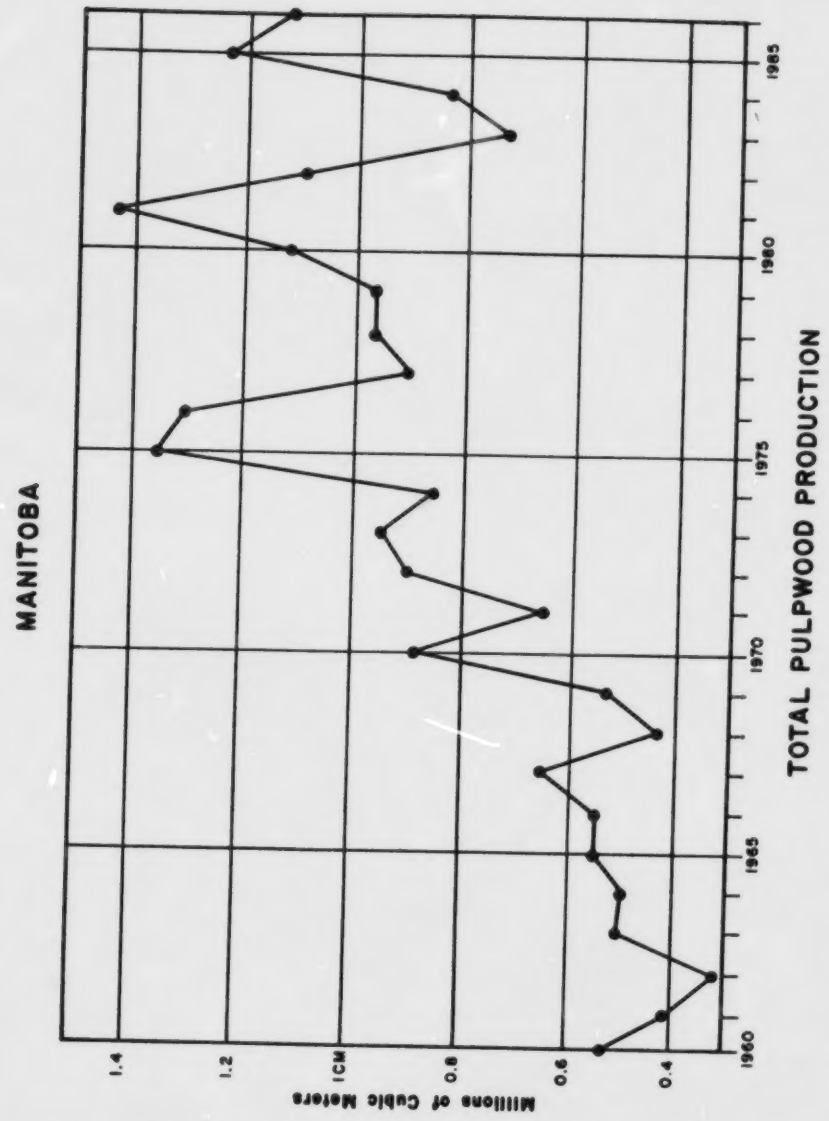

MANITOBA
TOTAL LUMBER PRODUCTION
Thousands of Cubic Metres
700
600
500
400
300
200
100
1960
1965
1970
1975
1980
1985

FIGURE 10.


MANITOBA
TOTAL PULPWOOD PRODUCTION
Millions of Cubic Meters
1.4
1.2
1.0
0.8
0.6
0.4
1960
1965
1970
1975
1980
1985

some development enquiries. A larger portion of our timber reserves, however, are currently not accessible due to a lack of major timber access roads.

The outlook for fuelwood is for little change from the past six or seven years. However, if there is another major oil price increase, this project could experience a substantial growth period similar to the one experienced in the late 1970s. (See Figure 8.) Fuelwood could then become an important forest product accounting for a significant portion of the annual harvest.

The national outlook for lumber is confusing as a result of United States interests seeking a counterveil duty on all Canadian softwood lumber. In Manitoba, past lumber production statistics have been quite cyclic as a result of market trends and the variable Manfor production statistics. The current provincial lumber forecast is therefore uncertain; a fire in the spring of 1986 in the South-East Forest Products Sawmill at Swan River, coupled with delays in rebuilding the Manfor Sawmill add to the uncertainty. Prospects for growth or expansion are limited as most of the better accessible timber/sawlog areas are committed. Figure 9 charts the provincial lumber production picture from 1961 to the present, and illustrates when Manfor entered the scene at the start of the 1970s.

The outlook for pulpwood, our principal forest product, is good. The growth pattern (See Figure 10) has been steady, averaging 33,000 cubic metres annually for 25 years. In 1960, the pulpwood harvest totalled approximately 400,000 cubic metres, and since then the annual production has risen to 1.2 million cubic metres in 1985. Forecasts are for a 2-4% annual growth, which today amounts to a yearly increase of 20,000 to 40,000 cubic metres.

Manitoba's pulpwood resources provide furnish for the two larger mills located in Manitoba (Manfor Ltd. and Abitibi-Price Inc.), and the two in Ontario at Fort Frances and Kenora, with a small amount going to the mid-western United States mills, mainly in Wisconsin and Minnesota. Any modernization or expansion to these mills would most likely increase their roundwood requirements. This could in turn be reflected by a corresponding increase in the current provincial pulpwood harvest levels.

The forecast for growth in the other forest product areas is promising. Mine timber production levels follow the mining activity in northern Manitoba industry. There have been some serious enquiries on the expansion of the treated wood post and pole business during the last five years. Railway tie production is dependent on the two rail company's supply picture and lumber prices. Christmas tree production should experience growth in the quantity of plantation — grown trees.

The most exciting area for new developments, however, is in the field of chip or particle board products. Such products would utilize hardwoods, mainly trembling aspen, or a mixture of hard and softwoods. These are relatively new products, developed and successfully marketed within the last 20 years. Growth rates in this chip/strand/particle board field are exceptional compared to other forest products. Manitoba has several areas for possible increase in demand for this type of product.

Evaluation of the Capability to Meet Anticipated Demands

At first glance the provincial forest resources should be capable of meeting normal demand, especially if the projected growth rate is in the 2% to 3% range over the next five years. Applying this to our current average annual harvest of 1.62 million cubic metres, it would take a five-fold expansion before the provincial AAC of 8.3 million cubic metres would be reached. This situation, however, can be somewhat misleading. Today the demand is for softwood timber in accessible stands. These areas must be serviced by a basic road network, for without them the supply picture must be altered.

Therefore, to accurately assess the next five-year demand/supply of the timber resource, the following information was compiled:

DEMAND	MILLIONS OF CUBIC METRES
Current softwood harvest	1.447
5-year growth at 2.5% / year	0.190
Projected 5-year average softwood harvest level	**1.637**

or

Peak softwood harvest (1980-1981)	2.118
5-year growth at 3% / year	0.337
Projected 5-year peak for softwood demand	**2.455**
SUPPLY	
Provincial softwood AAC	5.917
Excluding remote Forest Sections (Churchill, Nelson, Hayes River)	(2.642)
AAC Forest Management Plan to the year 2000	**3.275**
Minus AAC for FMUs difficult to access (FMU Nos. 36, 37, 39, 63, 64, 65, 66)	(0.996)
Plus AAC from remote accessible FMUs (.5 of FMU No. 83, 84, 85)	0.321
Realistic softwood AAC for the next 5 years	**2.600**

Within these adjustments to the supply/demand picture, the difference between a peak year with an average growth allowance (2.455 million cubic metres) and a realistic softwood AAC (2.600 million cubic metres) is only 5.6% (145,000 cubic metres) — a substantial difference from the first noted 500% difference.

It is now evident the role of the Mountain, Interlake and Lake Winnipeg East Forest Sections will play in a market surge similar to that of six years ago. These three sections have almost 750,000 cubic metres of surplus softwood AAC. They do, however, badly lack developed access routes ensuring full capabilities of responding to a future market surge to beyond the 2- to 2.25-million cubic metre softwood level.

Other softwood increases could occur if there is an expansion in either of the major pulp mills. This in turn would entail development of the AAC in FMUs outside of those included in establishing the 2.6-million supply level picture.

Hardwoods on the other hand are one of the more promising areas for developments on the immediate horizon. They are little utilized in all forest sections, except in Pinelands where half are being used for fuelwood and lumber. A chip, wafer or particle board plant holds good potential for development in the province. It would be limited only to the quantity and quality of the hardwood AAC in any one or combination of Forest Management Units or Forest Sections. Establishing such a plant in an active softwood-producing area would provide additional softwood supplies from the mixed and hardwood stands as a result of full forest harvesting.

Silviculture

Manitoba's Silviculture Program is divided into forest renewal and stand management.

Forest Renewal

History and Accomplishments

Historically, the renewal of Manitoba's forest land has been the responsibility of the provincial government. In 1979 a new era of forest management came into being with the signing of the Forest Management Licence with Abitibi-Price Inc. Under this agreement, the company assumed the responsibility of reforesting their cutover lands within the Forest Management Licence area to standards set by the province. This era of industry's assuming reforestation responsibility continued with Manfor Ltd. signing a forest renewal agreement in April, 1984. Under this agreement, there was a commitment that by 1989 all ongoing or current cutovers would receive treatment to ensure reforestation to the standards set by the province.

In 1981, the Forestry Branch treated 6,312 hectares or approximately 77% of the total area treated in the province, while industry treated 1,913 hectares or 23%. By 1985, this had changed to 57% by the province and 43% by industry. These figures show a definite shift from provincial to industrial responsibility. The total area treated increased dramatically within the past five years as a result of the Canada/Manitoba Forest Renewal Agreement. This agreement, signed in March 1984, has provided funding to intensify silvicultural management for both the branch and industry. Through this funding there has been an increase in reforestation of backlog sites, in stand management of both plantations and natural stands, and in research projects initiated to improve silvicultural management. With the agreement in place until 1989, continued expansion is expected in the forest renewal program to a point where approximately 20,000 hectares annually will receive some form of silvicultural treatment.

TABLE 7
TOTAL HECTARES TREATED

	1981	1982	1983	1984	1985
Province of Manitoba	6312 (77)	6360 (69)	6244 (73)	6786 (59)	8300 (57)
Abitibi-Price Inc.	1913 (23)	2792 (31)	2271 (26)	2753 (24)	2071 (14)
ManFor Ltd.	—	—	61 (1)	1882 (17)	4198 (29)
Total	8225	9152	8576	11421	14569

*Percentage of total area in brackets.

Nursery Management

There are two provincial forest nurseries in Manitoba. Pineland Provincial Forest Nursery, located near Hadashville, was started in 1953, and in 1956 the first crop of one million trees was planted. It was anticipated then that when fully developed, the annual production would be between seven and eight million seedlings annually. With the development that has occurred over the past few years, this nursery will produce between 15 and 16 million seedlings by 1989.

The other nursery, Clearwater Provincial Forest Nursery, is located in northern Manitoba near The Pas. First ground was broken in July 1982 and will near completion in 1987. The capacity will be approximately six to eight million seedlings, depending on the demands and the type of crop rotation that will be developed.

Greenhouse Production

The Pineland Provincial Forest Nursery is both a containerized and a bareroot nursery; whereas, Clearwater Provincial Forest Nursery is, at this point in time, just producing containerized seedlings.

In 1981, the capacity of Pineland was just over 900,000 seedlings. Through development of this nursery by adding greenhouses as well as infrastructures, the maximized target of approximately six million containerized seedlings will be reached in 1986.

At Clearwater, the first greenhouses were brought into production in 1982, with the first crop of 400,000 in the spring of 1983. By 1988 full production of four million seedlings will be realized under one crop system which can be doubled if two crops are produced.

In these greenhouses, containerized seedlings are grown in various types of pots, some of which are reusable.

Prior to acquiring the Lannen seeding lines, one for each nursery, the trays were filled by hand, taking considerable time and effort. With the new system in place, the Forestry Branch is able to load one greenhouse in less than a day. This previously took up to four days of manual labour.

All production in these greenhouses is now monitored on a daily basis. Growth curves are being developed to address the need for fertilizer change. All crops are developed to a pre-determined guideline. Crops now reach the previously identified stage to suit the needs, the site and the timing for field delivery to specific locations.

All containerized seedlings are shipped by nursery vehicles to the site. When the new cold storage building is developed, the seedlings will be packaged and over-wintered in a frozen state to control field delivery as well as quality of these seedlings.

Field Production

In 1981-1982 the Pineland nursery had 21 hectares of natural bareroot growing space. With the development of new fields, this has been expanded to 38 hectares, which will have an approximate capacity of 10 million bareroot seedlings.

Currently, white spruce seedling stock forms a large part of the total bareroot production. Up to 1985, production was all seedling stock; but, in 1985 a transplant trial program was initiated. In 1986, the nursery will be growing one greenhouse of black spruce and then transplanting the trees in the spring of 1987 for shipment during the spring of 1989. Bareroot production will increase from 3.5 million in 1981 to 10 million in 1989. The nursery will be directing a portion of the production towards transplants, probably greenhouse transplants of white spruce and black spruce. The pines will remain a seedling stock, with the possibility of a trend towards producing more pines in container stock.

Up until 1985, the only storage facilities being used for bareroot seedling storage were two small coolers at the nursery. One cooler has a capacity of approximately one million, and the other used for woodlot orders is much smaller. By the fall of 1987 the new cold storage facility will be in operation and could hold up to 10 million frozen seedlings.

The Pineland nursery looks after the shipping of all bareroot seedlings for reforestation purposes. Delivery is by three refrigerated vans, two three-ton trucks and two one-ton trucks. This method of shipping is expected to remain the same.

Tree Improvement and Forest Genetics

Tree breeding in the province is opening new vistas where conserving, specializing and increasing forest production is beginning to occur by using principles of genetics.

The objectives of the tree improvement program are:

1. to establish operational seed orchards in every forest region;
2. to establish specialized seed orchards in the vicinity of forest nurseries;
3. to determine the amount of genetic improvement attainable with promising genera; and
4. to formulate appropriate breeding strategies based on information derived from genetic parameters of important growth and quality attributes.

The program is also targeted to produce genetically improved seed in terms of economic yields, provide resource management foresters of the province with information and breeding material required to attain realistic genetic gains in stock used for forest renewal efforts and to endeavor to obtain solutions to applied tree improvement problems through short-term studies.

Woodlot Production

The Pineland Provincial Nursery has produced trees for woodlots and will continue to do so. The demand for trees by Christmas tree growers and private woodlots has increased in the last couple of years, a trend that is expected to continue.

The nursery sells these seedlings for $65 per thousand. All orders are packaged and ready for delivery.

Planting

Planting in Manitoba is carried out by both hand and mechanical methods. Hand planting accounts for 94% of the seedlings being planted over the past five years. These programs increased from 3.2 million seedlings in 1981, to 8.9 million seedlings in 1985. The two-fold increase from 1984 to 1985 corresponds with Manfor's assuming their reforestation responsibilities, and a major expansion of both regional and Abitibi programs under the funding of the Canada/Manitoba Forest Renewal Agreement. With the continuation of these agreements there is a commitment by the province and industry to increase hand-planting programs to 20 million seedlings annually.

Prior to 1984, the department carried out their planting programs using casual laborers hired on an hourly basis. In 1984, tendered contract planting was introduced on a small scale, proving to be successful. In 1985, approximately 35% of department planting was completed this way. If contracts continue to provide equal or better quality planting at low prices, then these will be increased in the future.

Site Preparation

Site preparation is carried out to provide a planting opportunity for hand and/or mechanical planting, and/or to prepare the site so that natural regeneration may occur.

To accomplish this objective, a wide variety of both new and improved site preparation equipment has been tried, much of it being very successful. (See Table 7.)

The equipment used for site preparation is constantly changing. The branch will continue to monitor these changes and attempt to produce quality site preparation with minimal expense to the province.

The use of herbicides as a site preparation tool has been used by both the branch and industry, on a very small scale. In the past five years approximately 200 hectares have been treated with an aerial application of Roundup or 2-4-D. Most of the work was completed by Abitibi-Price. The Eastern Region and Manfor treated one experimental area in 1984 and 1985. The future of chemical site preparation is undecided until the monitoring of effectiveness and environmental safety concerns are studied fully.

The first three years of the reporting period, scarification or mechanical disturbance of a site remained fairly stable at approximately 3,500 hectares annually. In the last two years this has dropped by approximately 50%. The reduction can be attributed to two related factors; the first being an emphasis on planting the site with superior seedling stock, the second being the shift of the reforestation responsibility to Manfor where the bulk of the scarification took place. Since Manfor's priority has also been planting, the downturn trend is expected to continue in the future.

Seeding

Hand seeding of site-prepared areas has been reduced to a very small scale. Over the last five years only 200 hectares annually have been seeded by both the province and industry. The main reason is the very poor results of past seeding projects, high labour costs, the volume of seeds required to treat a hectare, and the shortage of seed inventories over the past few years.

Mechanical seeding of prepared sites has been used to a larger extent than hand seeding, but it still involves only a very small percentage of the total area treated over the last five years.

Stand Management

Stand management activity was expanded following the signing of the Canada/Manitoba Forest Renewal Agreement. (See Table 8.) With this agreement came the mandate to inten-

TABLE 8
STAND MANAGEMENT
(Hectares)*

	1981	1982	1983	1984	1985
Southeastern Region	Nil	Nil	553	1042	878
Eastern Region	Nil	Nil	Nil	356	702
Interlake Region	Nil	Nil	Nil	465	410
Western Region	Nil	Nil	Nil	299	685
Northern Region	Nil	Nil	Nil	581	88
Abitibi-Price Inc.	528	1788	1006	1639	780
ManFor Ltd.	N/A	N/A	61	150	257
Total	527	1788	1620	4532	3800

*This includes both mechanical and chemical treatments in both plantations and natural stands.

sify management of plantations and superior natural stands. The objectives of this program are to improve the quality of the growing stock, the rotation age, and to increase merchantable volume grown on the site over the rotation period. With this mandate, both the province and industry have expanded their programs to a level where approximately 4,000 hectares are being treated on an annual basis.

Forest Protection

The Forest Protection Section is responsible for the conservation and protection of Crown-owned timber. They have the sole responsibility of protecting the forests from insects and diseases — including Dutch Elm Disease. The responsibility for fire losses, however, is carried out jointly by this section and the Regional Services Branch.

Within the period from 1981-1985 this section was realigned to lend greater significance to monitoring pests that have the potential to cause serious timber losses. Originally, general surveys of major forest pests were conducted on an annual basis only. Following this, recommendations were made when control action was deemed necessary. Under the new revision, the Forest Protection Section now provides site-specific management recommendations based on a pest population survey and potential damage estimates. Pest management strategies are implemented in co-operation with regional forestry staff. An indication of the area involved in pest management is outlined in Chart 1, Volume 2. Along with staff realignment a total of 123,247 hectares were surveyed for a variety of important insects and diseases.

Within this section is an applied research unit whose responsibility is to reassess and refine pest-caused damage estimates, and the success of pest-management strategies. Most of this work is a joint effort with the Canadian Forestry Service under the Memorandum of Understanding on Forest Research.

The Dutch Elm Disease program falls under its own act, rather than the Forest Act, and involves 39 rural and urban municipalities including the City of Winnipeg. The program is focused on urban centres where elms represent up to 60% of the tree cover. By entering into the cost-sharing program, the municipalities implement disease-management strategies, cost sharing them with the province up to a maximum limit. This effort is further supplemented by survey, removal and applied research activities, delivered directly by the branch.

In the city of Winnipeg less than 1% of the elm population is removed annually, because of diseased or hazardous conditions. Of those, 85% are removed from the wild riverbank elm population. This is considered to be a very successful program, based on the number of trees within the city that are lost to disease.

Winnipeg's street tree population is over 100,000 elms — .01% or 100 trees are removed annually because of Dutch Elm Disease. The program is also considered to be a financial success in that control costs are significantly less than the removal costs would be if the disease was allowed to spread unchecked. With the existing program, the elm population can be managed for up to 90 years at the same cost that would be incurred over a 10-year period if Dutch Elm Disease spread freely, and the existing elms had to be removed and replaced.

Jack Pine Budworm

The jack pine budworm infestation intensified and expanded in Manitoba in 1985. The Interlake and Eastern regions had a considerable increase in budworm activity with extensive areas of defoliation lying east and west of Lake Winnipeg.

In 1985 surveys predicted severe defoliation in the Moose Lake area — an area which has extensive acreage of merchantable, mature and valuable immature jack pine. Preparations began for a control program in high-priority areas using the biological control agent Thuricide 32F. When populations did not reach the expected level, the spray program was dropped.

Priority areas were selected in all five provincial regions for the 1986 jack pine budworm predictions. In choosing these areas the regions took into consideration over-mature forests, poor site conditions, plantations and managed stands.

When completed, the 1986 predictions will help decide on the appropriate control strategy. Five levels or options for control have been drawn up. The five regional foresters have been presented with these options and will decide, based on the 1986 predictions, the appropriate control strategy for their region.

The jack pine budworm infestation is expected to continue in the southeast region in the same areas as 1985, with some expansion into adjacent stands. Moderate to severe defoliation is predicted to cover 33,600 hectares of jack pine of various age groups in the Sandilands Provincial Forest.

Dwarf Mistletoe Management

In Manitoba, dwarf mistletoe causes extensive damage, reducing both the quantity and quality of merchantable timber. Two species of dwarf mistletoe are found in the province. One affects jack pine, the other black and white spruce. The Mistletoe Management Program is directed at managing the pine dwarf mistletoe because of its economic importance and accessibility.

This program, funded under the Canada/Manitoba Forest Renewal Agreement, is divided into five project areas:

1. Surveys — locating and mapping mistletoe infestations;
2. Post-logging treatment — ensuring that harvested infected stands are regenerated in a healthy condition;
3. Sanitation treatments — reducing or eliminating infestations from jack pine stands;
4. Salvage operations — initiating the harvesting of mature stands that are severely infected and that would not otherwise be harvested due to low stand volume; and
5. Research — to continue to improve the disease-management strategies.

Spruce Budworm

Infestation of spruce budworm in the Whiteshell Provincial Park and the southern Interlake Region entered the 10th consecutive season in 1985. Light to moderate defoliation occurred in scattered pockets in these areas. Severe defoliation has occurred in the area east of Lake Winnipeg near the Ontario boundary through 1982-1985. Considerable balsam fir mortality has occurred in the infested areas over the past four years.

Harvesting of white spruce and balsam fir is continuing in the Lac Du Bonnet district of eastern Manitoba. Stands in these areas are in a state of decline due to repeated spruce budworm attacks.

In 1984 and 1985 severe defoliation occurred in the Mafeking and Winnipegosis districts. This outbreak appears to have expanded from a localized infestation which began in the Mafeking area in 1983.

The 1985 larval counts in the Whiteshell and southern Interlake Region showed a decline in population levels. This drop-off in numbers was likely due to an early hatch followed by below-normal temperatures in June. The decline does not appear to be a trend as egg mass counts predict generally moderate to severe defoliation levels for 1986.

Fire Management

The responsibility of wildfire management in the province belongs to the Regional Services Branch. Within the branch is the Fire Management and Communications section, whose major role is detection, prevention, presuppression and suppression of wildfires. In the period 1981 to 1985, significant improvements have occurred.

Manitoba uses a combination of 32 lookout towers and six contract C-337 high-wing detection aircraft to detect fires. In the period under review, seven station lightning-locator networks have been installed to pinpoint the location of lightning-caused fires.

The provincial fire prevention program attempts to educate the public, thereby reducing human-caused fires. The program currently operates with four patrol officers on the agro-forest fringe who organize volunteer fire crews to take initial fire action in each area. In addition, approximately 700 Honorary Fire Guardians are appointed annually to assist the department in fire suppression. In 1985, a native fire prevention liaison officer was appointed in an attempt to prevent fires on Indian reserves.

To reduce the chances of a fire becoming severe, as in 1983, (See Chart 3), four steps in presuppression were taken. They were:

1. a fire alert system using a fire weather index danger rating will preposition fire teams, crews and aircraft prior to outbreaks based upon expected fire occurrences;
2. specialists and fire overhead teams have been catalogued for use on large fires;
3. fireline radio communications were improved by purchasing five fireline radio kits; and
4. computer networks were improved.

Firetac and Helitac

The initial attack on a fire is by the Firetac and Helitac crews. The Firetac Program in Manitoba has been ongoing since 1976, but it wasn't until 1981 that the Helitac Program was founded. This program is similar to Firetac, although crews are assigned a helicopter to initially attack all fires within a 160-kilometre radius of a Helitac base. The bases are located at Wekusko, Bissett and Paint Lake. (See Charts 4, 5 and 6.) Since their inception the Firetac and Helitac programs have demonstrated positive results.

In addition to staff programs, significant improvements have been made in equipment use, modification and acquisition. Infrared detection on wildfires is now conducted to decrease mop-up time; a new aerial drip torch is used to begin backfires and reduce further spread; and, six trailers have been purchased to move equipment and staff to project fires.

Forestry Initiatives

One of the major outputs of the Manitoba Forest Management Plan 1981-2000 was an indication that before the end of this decade, the softwood timber supply in the currently utilized forest sections of the province would not meet the expected demand with the existing (pre-1984) level of forest management. The result of taking no action would be the lowering of the AAC by approximately 7% per year as softwood timber supplies decline. The forest industry in Manitoba and all the socio-economic benefits derived from it would also decline at a similar rate.

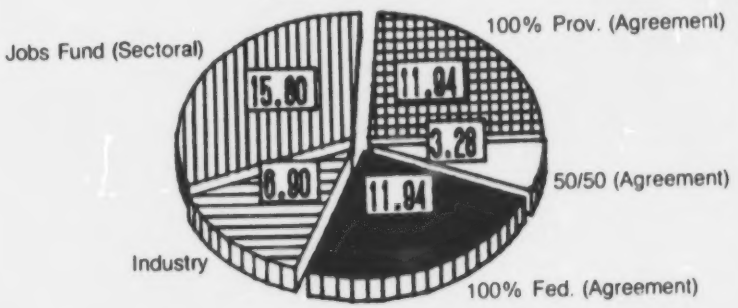
The increase in forest management activity that was necessary to prevent such a crisis was estimated to represent a $50-million commitment over the first five-year period. This increased level of forest management activity must be maintained over the 20-year span of the agreement to prevent the timber supply crisis from happening.

The Forestry Initiatives Program is a 20-year program started in 1984. It is currently made up of the Canada/Manitoba Forest Renewal Agreement and the Jobs Fund Sectoral Project in Forestry.

Of the $50 million required during the first five-year period, $27 million is being generated by the Canada/Manitoba Forest Renewal Agreement.

FIGURE 11
FORESTRY INITIATIVES
1984 / 1989

(All funds in millions)



TOTAL FEDERAL CONTRIBUTION = 100% FED. + ½ (50/50)

The province has also signed agreements with the major forest industries for another $7 million of forest renewal activity over the same period. The remaining requirement of $16 million is being made available on an annual basis through the Jobs Fund Sectoral Project in Forestry.

The Forestry Initiatives, both the agreement and the sectoral project, are divided into these four major program areas:

1. Forest Renewal — Since current levels of renewal activity will not sustain harvest levels sufficient to fulfill future needs, the objective of this program is to increase reforestation activities in order to convert the backlog of not sufficiently restocked lands into stocked, productive lands.
2. Intensive Forest Management — The provision for a specific program for intensive forest management in the form of stand-tending treatments will have the most immediately realizable impact on timber supply. This economic impact will be greatest if stand-tending activities are practised on areas located near existing processing centres. This program includes:
   - — conifer release to remove competing deciduous growth in natural regenerated stands,
   - — juvenile spacing and pre-commercial thinning,
   - — commercial thinning,
   - — site preparation, and
   - — scarification.
3. Applied Research, Technology Transfer, Opportunity Identification and Nursery Development — This program is very diverse. It provides a service function designed to ensure necessary information is available to enhance the effective and efficient management of Manitoba's forests. This is to be accomplished through:
   - — applied research into new and improved technology,
   - — transfer of existing technology to the field,
   - — installation of a geographically oriented computer storage, retrieval and mapping system to monitor changes in growth and annually update inventory data, and
   - — improve the capabilities of fire prevention programs.

Also within this program is the planned expansion of the two provincial forest nurseries to better meet the projected requirements for tree seedlings for forest renewal. This expansion will go from the pre-forestry initiatives level of about four million trees per year to a planned output of over 20 million seedlings produced annually by 1989.

4. Public Information, Evaluation and Administration — The purpose of this program is to provide information to the public on activities related to the forestry initiatives, to provide the essential evaluation for monitoring the effectiveness of the various programs, and to provide the necessary administrative support.

During the period covered by this report, only two of the first five years of the Forestry Initiatives have been completed. During that time, major expansion took place at the two provincial forest nurseries, where there is now a combined total of 34 greenhouses and 38 hectares of bareroot fields. As a result, one million seedlings were produced and planted. The Geographic Information System was purchased during that same time period.

For further statistical information please see Tables, Charts and Graphs compiled in Volume 2.

TABLE 16
WILDFIRE LOSS SUMMARY BY MERCHANTABLE VOLUME
(m^3)

1976 to 1985
All reported fires
All status & ownership
March, 1986

Forest Section	Year	Pine	Spruce	Fir	Other Softwoods	Total Softwood	Poplar	Other Hardwoods	Total Hardwood	Total
Manitoba	1976	860,760	951,960	41,410	35,220	1,889,350	546,920	48,720	595,640	2,484,990
	1977	1,192,330	2,639,470	60,820	10,670	3,903,290	2,232,210	174,990	2,407,200	6,310,490
	1978	221,490	603,770	10,940	1,410	837,610	90,370	19,890	110,260	947,870
	1979	1,273,660	1,014,130	22,720	11,350	2,321,860	322,200	39,670	361,870	2,683,730
	1980	8,097,640	9,242,480	221,870	192,630	17,754,620	3,669,700	419,100	4,088,800	21,843,420
	1981	1,907,830	3,793,330	50,670	39,610	5,691,440	1,054,470	203,220	1,257,690	6,949,130
	1982	72,090	163,560	8,460	9,230	253,340	66,240	12,180	78,420	331,760
	1983	1,615,250	964,300	69,850	85,690	2,735,090	724,980	74,560	799,540	3,534,630
	1984	432,120	382,950	29,770	29,020	873,860	608,710	47,620	656,330	1,530,190
	1985	55,970	86,240	1,340	1,250	144,800	20,610	3,560	24,170	168,970
Total		15,629,140	19,842,190	517,850	416,080	36,405,260	9,336,410	1,043,510	10,379,920	46,785,180
10-year average		1,562,920	1,984,230	51,780	41,610	3,640,540	933,630	104,350	1,037,980	4,678,520
Last 5-year total		3,983,260	5,390,380	160,090	164,800	9,698,530	2,475,010	341,140	2,816,150	12,514,680
Last 5-year average		796,650	1,078,090	32,030	32,950	1,939,710	495,000	68,230	563,230	2,502,940

TABLE 16
WILDFIRE LOSS SUMMARY
BY MERCHANTABLE VOLUME
(m³)

1976 to 1985
All reported fires
All status & ownership
March, 1986

Forest Section	Year	Pine	Spruce	Fir	Other Softwoods	Total Softwood	Poplar	Other Hardwoods	Total Hardwood	Total
0	1976	6,510	31,210	30	30	37,780	4,930	1,330	6,260	44,040
	1977	—	4,960	—	200	5,160	250	30	280	5,440
	1978	—	—	—	—	—	—	—	—	—
	1979	—	—	—	—	—	—	—	—	—
	1980	10	39,610	—	3,130	42,750	14,970	3,110	18,080	60,830
	1981	20	4,560	20	5,660	10,260	18,290	3,620	21,910	32,170
	1982	—	110	—	—	110	790	320	1,110	1,220
	1983	—	50	—	10	60	1,260	440	1,700	1,760
	1984	20	4,100	70	340	4,530	15,450	2,470	17,920	22,450
	1985	—	—	—	—	—	180	—	180	180
Total '0'		6,560	84,600	120	9,370	100,650	56,120	11,320	67,440	168,090
10-year average		660	8,460	10	940	10,070	5,610	1,130	6,740	16,810
Last 5-year total		40	8,820	90	6,010	14,960	35,970	6,850	42,820	57,780
Last 5-year average		10	1,760	20	1,200	2,990	7,190	1,370	8,560	11,550
1	1976	1,250	6,290	60	310	7,910	68,840	2,320	71,160	79,070
	1977	—	2,520	80	80	2,680	6,030	170	6,200	8,880
	1978	680	250	—	—	930	230	—	230	1,160
	1979	—	280	—	—	280	30	—	30	310
	1980	3,340,410	2,545,490	59,900	16,510	5,962,310	1,643,870	119,360	1,763,230	7,725,540
	1981	—	510	20	310	840	3,040	110	3,150	3,990
	1982	1,560	6,090	—	2,830	10,480	9,970	900	10,870	21,350
	1983	1,240	16,300	160	840	18,540	48,580	1,970	50,550	69,090
	1984	360	2,950	80	30	3,420	103,270	5,310	108,580	112,000
	1985	—	—	—	—	—	190	20	210	210
Total '1'		3,345,500	2,580,680	60,300	20,910	6,007,390	1,884,050	130,160	2,014,210	8,021,600
10-year average		334,550	258,070	6,030	2,090	600,740	188,400	13,020	201,420	802,160
Last 5-year total		3,160	25,850	260	4,010	33,280	165,050	8,310	173,360	206,640
Last 5-year average		630	5,170	50	800	6,650	33,010	1,660	34,670	41,320

TABLE 16
WILDFIRE LOSS SUMMARY
BY MERCHANTABLE VOLUME
(m³)

1976 to 1985
All reported fires
All status & ownership
March, 1986

Forest Section	Year	Pine	Spruce	Fir	Other Softwoods	Total Softwood	Poplar	Other Hardwoods	Total Hardwood	Total
2	1976	11,520	46,210	1,590	19,140	78,460	52,130	5,950	58,080	136,540
	1977	540	4,700	280	3,570	9,090	17,610	790	18,400	27,490
	1978	30	30	30	—	90	200	30	230	320
	1979	400	60	—	80	540	1,270	—	1,270	1,810
	1980	13,370	39,910	1,360	13,630	68,270	47,440	5,060	52,500	120,770
	1981	3,990	73,170	4,880	19,880	101,920	103,010	15,810	118,820	220,740
	1982	800	3,720	320	1,940	6,780	11,910	1,950	13,860	20,640
	1983	2,930	900	160	310	4,300	9,240	910	10,150	14,450
	1984	4,460	35,410	860	8,940	49,670	43,190	4,060	47,250	96,920
	1985	180	30	60	—	270	1,830	230	2,060	2,330
Total '2'		38,220	204,140	9,540	67,490	319,390	287,830	34,790	322,620	642,010
10-year average		3,820	20,420	950	6,750	31,940	28,780	3,480	32,260	64,200
Last 5-year total		12,360	113,230	6,280	31,070	162,940	169,180	22,960	192,140	355,080
Last 5-year average		2,470	22,650	1,260	6,210	32,590	33,840	4,590	38,430	71,020
3	1976	737,340	521,430	35,080	11,300	1,305,150	355,060	30,670	385,730	1,690,880
	1977	22,680	43,210	4,530	420	70,840	10,620	1,100	11,720	82,560
	1978	5,780	3,910	30	30	9,750	1,250	30	1,280	11,030
	1979	383,240	343,450	20,760	7,250	754,700	172,650	12,830	185,480	940,180
	1980	2,286,570	2,104,370	125,660	138,950	4,655,550	946,480	102,370	1,048,850	5,704,400
	1981	94,120	129,270	4,730	2,220	230,340	47,250	4,540	51,790	282,130
	1982	2,950	17,240	3,460	1,620	25,270	5,880	740	6,620	31,890
	1983	1,567,120	908,120	68,140	81,550	2,624,930	644,920	68,760	713,680	3,338,610
	1984	372,250	211,700	18,650	14,940	617,540	185,470	18,920	204,390	821,930
	1985	9,910	5,110	180	110	15,310	4,030	190	4,220	19,530
Total '3'		5,481,960	4,287,810	281,220	258,390	10,309,380	2,373,610	240,150	2,613,760	12,923,140
10-year average		548,200	428,780	28,120	25,840	1,030,940	237,360	24,010	261,370	1,292,310
Last 5-year total		2,046,350	1,271,440	95,160	100,440	3,513,390	887,550	93,150	980,700	4,494,090
Last 5-year average		409,270	254,290	19,030	20,090	702,680	177,510	18,530	196,140	898,820

TABLE 16
WILDFIRE LOSS SUMMARY
BY MERCHANTABLE VOLUME
(m³)

1976 to 1985
All reported fires
All status & ownership
March, 1986

Forest Section	Year	Pine	Spruce	Fir	Other Softwoods	Total Softwood	Poplar	Other Hardwoods	Total Hardwood	Total
4	1976	52.980	71.130	910	3.820	128.840	46.010	2.040	48.050	176.890
	1977	115.670	764.160	8.070	4.810	892.710	1.780.960	83.850	1.864.810	2.757.520
	1978	15.460	44.230	1.420	280	61.390	3.990	1.760	5.750	67.140
	1979	1.270	650	—	—	1.920	—	—	—	1.920
	1980	13.550	37.950	2.000	3.470	56.970	33.220	1.320	34.540	91.510
	1981	2.100	4.870	190	110	7.270	16.920	630	17.550	24.820
	1982	13.480	19.100	810	2.720	36.110	22.450	1.400	23.850	59.960
	1983	1.080	12.190	500	2.860	16.630	13.350	730	14.080	30.710
	1984	13.160	65.280	8.210	4.480	91.130	243.520	12.970	256.490	347.620
	1985	1.180	5.570	630	860	8.240	6.740	440	7.180	15.420
Total '4'		229.930	1.025.130	22.740	23.410	1.301.210	2.167.160	105.140	2.272.300	3.573.510
10-year average		22.990	102.510	2.280	2.340	130.120	216.720	10.510	227.230	357.350
Last 5-year total		31.000	107.010	10.340	11.030	159.380	302.980	16.170	319.150	478.530
Last 5-year average		6.200	21.400	2.070	2.210	31.880	60.600	3.230	63.830	95.710
5	1976	420	6.570	30	200	7.220	570	60	630	7.850
	1977	29.990	17.160	80	230	47.460	10.680	960	11.640	59.100
	1978	1.130	14.920	—	200	16.250	1.220	280	1.500	17.750
	1979	608.130	113.320	250	3.600	725.300	33.220	6.140	39.360	764.660
	1980	164.560	169.190	480	5.860	340.090	26.960	4.210	31.170	371.260
	1981	39.280	26.390	110	290	66.070	8.160	1.590	9.750	75.820
	1982	2.070	5.100	160	10	7.340	2.240	670	2.910	10.250
	1983	37.390	11.140	90	120	48.740	5.440	980	6.420	55.160
	1984	820	1.600	—	—	2.420	3.630	360	4.190	6.610
	1985	—	200	—	—	200	130	10	140	340
Total '5'		883.790	365.590	1.200	10.510	1.261.090	92.450	15.260	107.710	1.368.800
10-year average		88.380	36.560	120	1.050	126.110	9.240	1.530	10.770	136.880
Last 5-year total		79.560	44.430	360	420	124.770	19.800	3.610	23.410	148.180
Last 5-year average		15.910	8.890	70	80	24.950	3.960	720	4.680	29.630

TABLE 16
WILDFIRE LOSS SUMMARY
BY MERCHANTABLE VOLUME
(m³)

1976 to 1985
All reported fires
All status & ownership
March, 1986

Forest Section	Year	Pine	Spruce	Fir	Other Softwoods	Total Softwood	Poplar	Other Hardwoods	Total Hardwood	Total
6	1976	15,770	70,170	170	110	86,220	8,130	1,330	9,460	95,680
	1977	4,670	33,810	30	—	38,510	13,560	1,250	14,810	53,320
	1978	87,750	281,300	3,510	420	372,980	57,620	11,160	68,780	441,760
	1979	140,960	426,580	1,080	260	568,880	101,010	13,730	114,740	683,620
	1980	1,799,980	3,271,220	16,420	9,120	5,096,740	731,030	137,260	868,290	5,965,030
	1981	507,190	1,376,200	6,100	3,360	1,892,850	467,610	62,110	529,720	2,422,570
	1982	12,060	10,180	30	20	22,290	3,270	610	3,880	26,170
	1983	670	4,660	—	—	5,330	410	90	500	5,830
	1984	4,630	5,070	—	—	9,700	800	180	980	10,680
	1985	20	180	—	—	200	10	—	10	210
Total '6'		2,573,700	5,479,350	27,340	13,310	8,093,700	1,383,450	227,720	1,611,170	9,704,870
10-year average		257,370	547,940	2,730	1,330	809,370	138,350	22,770	161,120	970,490
Last 5-year total		524,570	1,396,290	6,130	3,380	1,930,370	472,100	62,990	535,090	2,465,460
Last 5-year average		104,910	279,260	1,230	680	386,080	94,420	12,600	107,020	493,100
7	1976	1,610	6,990	—	—	8,600	60	230	290	8,890
	1977	—	—	—	—	—	—	—	—	—
	1978	—	480	—	—	480	—	—	—	480
	1979	80,360	37,460	—	110	117,930	1,500	4,420	5,920	123,850
	1980	1,450	420	—	—	1,870	30	70	100	1,970
	1981	260,750	409,010	—	920	670,680	7,620	23,050	30,670	701,350
	1982	19,350	29,880	—	50	49,280	520	1,720	2,240	51,520
	1983	1,300	1,370	—	—	2,670	—	150	150	2,820
Exel FMU 1976	1984	1,140	370	—	—	1,510	—	10	10	1,520
	1985	8,110	9,300	—	—	17,410	180	640	820	18,230
Total '7'		374,070	495,280	—	1,080	870,430	9,910	30,290	40,200	910,630
10-year average		37,410	49,530	—	110	87,050	990	3,030	4,020	91,070
Last 5-year total		290,650	449,930	—	970	741,550	8,320	25,570	33,890	775,440
Last 5-year average		58,130	89,990	—	190	148,310	1,660	5,120	6,780	155,090

TABLE 16
WILDFIRE LOSS SUMMARY
BY MERCHANTABLE VOLUME
(m³)

1976 to 1985
All reported fires
All status & ownership
March, 1986

Forest Section	Year	Pine	Spruce	Fir	Other Softwoods	Total Softwood	Poplar	Other Hardwoods	Total Hardwood	Total
8	1976	2.240	17.780	400	—	20.420	1.590	230	1.820	22.240
	1977	15.230	223.530	1.590	140	240.490	21.720	3.790	25.510	266.000
	1978	25.770	132.130	3.940	370	162.210	10.990	2.380	13.370	175.580
	1979	850	4.620	60	—	5.530	1.160	60	1.220	6.750
	1980	34.450	246.890	2.760	730	284.830	109.680	10.810	120.490	405.320
	1981	198.400	716.830	11.870	4.500	931.600	192.620	35.010	227.630	1.159.230
	1982	210	1.550	—	—	1.760	420	20	440	2.200
	1983	130	400	100	—	630	70	20	90	720
	1984	9.110	18.490	200	110	27.910	4.010	820	4.830	32.740
	1985	2.420	40.280	170	230	43.100	2.420	980	3.400	46.500
Total '8'		288.810	1.402.500	21.090	6.080	1.718.480	344.680	54.120	398.800	2.117.280
10-year average		28.880	140.250	2.110	610	171.850	34.470	5.410	39.880	211.730
Last 5-year total		210.270	777.550	12.340	4.840	1.005.000	199.540	36.850	236.390	1.241.390
Last 5-year average		42.050	155.510	2.470	970	201.000	39.910	7.370	47.280	248.280
9	1976	31.120	174.180	3.140	310	208.750	9.600	4.560	14.160	222.910
	1977	1.003.550	1.545.420	46.160	1.220	2.596.350	370.780	83.050	453.830	3.050.180
	1978	84.890	126.520	2.010	110	213.530	14.870	4.250	19.120	232.650
	1979	58.450	87.730	570	30	146.780	11.360	2.490	13.850	160.630
	1980	443.290	787.430	13.290	1.230	1.245.240	116.020	35.530	151.550	1.396.790
	1981	701.980	1.052.520	22.750	2.360	1.779.610	189.950	56.750	246.700	2.026.310
	1982	19.610	70.590	3.680	40	93.920	8.790	3.850	12.640	106.560
	1983	3.390	9.170	700	—	13.260	1.710	510	2.220	15.480
	1984	26.170	37.980	1.700	180	66.030	9.170	2.520	11.690	77.720
	1985	34.150	25.570	300	50	60.070	4.900	1.050	5.950	66.020
Total '9'		2.406.600	3.917.110	94.300	5.530	6.423.540	737.150	194.560	931.710	7.355.250
10-year average		240.660	391.710	9.430	550	642.350	73.710	19.460	93.170	735.520
Last 5-year total		785.300	1.195.830	29.130	2.630	2.012.890	214.520	64.680	279.200	2.292.090
Last 5-year average		157.060	239.170	5.830	520	402.580	42.900	12.940	55.840	458.420

TABLE 17
ANNUAL ALLOWABLE CUT SUMMARY
PROVINCIAL CROWN LAND
OPEN ZONE BY FOREST SECTION AND SPECIES WORKING GROUP

(Volumes in Cubic Metres per Year)

Forest Section	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
Aspen Parkland	480	50	2,460	—	—	—	2,990	41,600	5,370	1,450	16,330	64,750	67,740
Mountain	114,310	192,560	75,220	16,410	3,680	—	402,180	415,290	101,970	56,870	4,160	578,290	980,470
Pineland	80,130	65,530	12,510	8,740	7,710	4,810	179,430	123,130	30,360	14,580	5,270	173,340	352,770
Lake Winnipeg East	400,600	285,760	68,220	21,100	12,240	40	787,960	236,120	11,880	18,660	1,860	268,520	1,056,480
Interlake	170,500	162,630	75,430	39,900	1,580	—	450,040	274,860	32,060	34,690	1,440	343,050	793,090
Saskatchewan River	230,080	170,810	78,810	2,750	1,960	—	484,410	96,260	10,190	12,400	40	118,890	603,300
Highrock	323,610	546,060	93,520	4,230	510	—	967,930	208,980	15,600	25,500	—	250,080	1,218,010
Churchill River	9,830	70,620	1,340	—	—	—	81,790	3,020	1,010	3,010	—	7,040	88,830
Nelson River	261,960	551,280	125,720	12,920	560	—	952,440	200,940	23,200	23,470	—	247,610	1,200,050
Hayes River	869,900	658,820	56,020	23,640	30	—	1,608,410	269,170	32,800	49,840	—	351,810	1,960,220
Manitoba	2,461,400	2,704,120	589,250	129,690	28,270	4,850	5,917,580	1,869,370	264,440	240,470	29,100	2,403,380	8,320,960

TABLE 18
ANNUAL ALLOWABLE CUT SUMMARY
PROVINCIAL CROWN LAND

(Volume in Cubic Metres per Year)

March, 1986

Manitoba	Zone	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
All Forest Sectors	Closed	Prov.	56,520	43,990	16,310	4,190	—	—	121,000	30,700	3,700	3,540	750	38,690	159,690
	Closed	Prov./F.M.L.	27,680	11,420	1,790	440	280	—	41,610	6,470	190	660	40	7,360	48,970
	Closed	Prov./IWSA.E	6,210	5,570	1,610	320	—	—	13,710	—	—	—	—	—	13,710
	Closed	Prov./IWSA.W	—	—	—	—	—	—	—	—	—	—	—	—	—
	Closed	Prov./M.F.R.	600	2,860	1,130	200	—	—	4,790	1,190	90	110	—	1,390	6,180
Sub-total	Closed		91,010	63,830	20,840	5,150	280	—	181,110	38,360	3,980	4,310	790	47,440	228,550
	Open	Prov.	1,287,680	1,136,140	226,440	66,510	13,030	4,850	2,734,650	1,068,620	193,500	143,610	27,280	1,433,010	4,167,660
	Open	Prov./F.M.L.	151,980	96,270	31,470	9,750	10,540	—	300,010	119,980	7,210	11,670	1,360	140,220	440,230
	Open	Prov./IWSA.E	73,350	87,890	19,400	5,780	660	—	187,080	37,060	1,340	1,520	—	39,920	227,000
	Open	Prov./IWSA.W	42,520	96,040	39,280	27,820	770	—	206,430	140,120	14,140	21,030	420	175,710	382,140
	Open	Prov./M.F.R.	894,530	1,268,440	268,710	19,590	3,270	—	2,454,540	492,430	47,170	61,760	40	601,400	3,055,940
	Open	Prov./INCO	11,340	19,340	3,950	240	—	—	34,870	11,160	1,080	880	—	13,120	47,990
Sub-total	Open		2,461,400	2,704,120	589,250	129,690	28,270	4,850	5,917,580	1,869,370	264,440	240,470	29,100	2,403,380	8,320,960
	Restricted	Prov.	12,400	23,430	14,660	2,140	10	—	52,640	42,910	7,190	4,660	1,990	56,750	109,390
	Restricted	Prov./F.M.L.	18,470	5,850	2,890	1,020	140	—	28,370	8,850	540	900	140	10,430	38,800
	Restricted	Prov./IWSA.E	—	—	—	—	—	—	—	—	—	—	—	—	—
	Restricted	Prov./IWSA.W	—	—	—	—	—	—	—	—	—	—	—	—	—
	Restricted	Prov./M.F.R.	420	5,960	1,520	260	—	—	8,180	500	60	140	—	700	8,880
Sub-total	Restricted		31,290	35,260	19,070	3,420	150	—	89,190	52,260	7,790	5,700	2,130	67,880	157,070
Total			2,583,700	2,803,210	629,160	138,260	28,700	4,850	6,187,880	1,959,990	276,210	250,480	32,020	2,518,700	8,706,580

TABLE 19
ANNUAL ALLOWABLE CUT SUMMARY
PROVINCIAL CROWN LAND
FOREST SECTION — ASPEN PARKLAND

(Volume in Cubic Metres per Year)

March, 1986

Forest Section	Management Unit	Level	Zone	Photo Year	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
0	1	Theo	Closed	1979	Prov	—	10	160	—	—	—	170	1,120	170	50	340	1,680	1,850
		Theo	Open	1979	Prov.	480	10	690	—	—	—	1,180	12,180	1,650	340	5,060	19,230	20,410
0	2	Theo	Open	1980	Prov	—	10	470	—	—	—	480	8,780	1,350	330	4,340	14,800	15,280
0	4	III	Open	1980	Prov	—	10	870	—	—	—	880	3,060	560	180	3,520	7,320	8,200
		III	Restricted	1980	Prov	—	70	1,950	—	—	—	2,020	3,590	920	420	1,310	6,240	8,260
0	5	III	Open	1981	Prov.	—	20	430	—	—	—	450	6,170	790	220	1,680	8,860	9,310
0	6	III	Closed	1982	Prov. (Portion)	—	—	—	—	—	—	—	970	80	30	190	1,270	1,270
		III	Open	1982	Prov. (Portion)	—	—	—	—	—	—	—	11,410	1,020	380	1,730	14,540	14,540
		III	Restricted	1982	Prov. (Portion)	—	—	—	—	—	—	—	4,120	370	130	640	5,260	5,260
0	7	III	Closed	1982	Prov. N/A													
		III	Open	1982	Prov. N/A													
		III	Restricted	1982	Prov. N/A													
Total			Closed		Prov	—	10	160	—	—	—	170	2,090	250	80	530	2,950	3,120
Aspen Parkland			Open		Prov.	480	50	2,460	—	—	—	2,990	41,600	5,370	1,450	16,330	64,750	67,740
			Restricted		Prov	—	70	1,950	—	—	—	2,020	7,710	1,290	550	1,950	11,500	13,520
		Total				480	130	4,570	—	—	—	5,180	51,400	6,910	2,080	18,810	79,200	84,380

TABLE 20
ANNUAL ALLOWABLE CUT SUMMARY
PROVINCIAL CROWN LAND
FOREST SECTION — MOUNTAIN

(Volume in Cubic Metres per Year)

March, 1986

Forest Section	Management Unit	Level	Zone	Photo Year	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
1	0	III	Open	1980	Prov	700	790	—	140	80	—	1,710	28,190	12,310	3,140	2,550	46,190	47,900
1	1	II	Open	1981	Prov	5,210	10,970	3,030	810	880	—	20,900	15,340	4,150	2,890	40	22,420	43,320
1	2	II	Open	1981	Prov	9,520	18,800	11,200	2,670	1,810	—	44,000	19,490	5,960	4,280	40	29,770	73,770
		II	Open	1981	Prov /M.F.R.	3,220	6,180	3,100	390	380	—	13,270	2090	900	490	—	3,480	16,750
		Sub-total	Open			12,740	24,980	14,300	3,060	2,190	—	57,270	21,580	6,860	4,770	40	33,250	90,520
1	3	III	Closed	1983	Prov	2,010	4,190	1,860	100	—	—	8,160	10,170	2,090	930	—	13,190	21,350
		III	Open	1983	Prov.	55,650	91,060	43,600	7,600	340	—	198,250	265,650	56,160	32,020	750	354,580	552,830
		III	Restricted	1983	Prov	5,150	8,860	3,160	410	10	—	17,590	24,450	4,870	2,360	10	31,690	49,280
1	4	III	Open	1981	Prov.	40,010	64,760	14,290	4,800	190	—	124,050	84,530	22,490	14,050	780	121,850	245,900
Total Mountain			Closed		Prov.	2,010	4,190	1,860	100	—	—	8,160	10,170	2,090	930	—	13,190	21,350
			Open		Prov	111,090	186,380	72,120	16,020	3,300	—	388,910	413,200	101,070	56,380	4,160	574,810	963,720
			Open		Prov /M.F.R.	3,220	6,180	3,100	390	380	—	13,270	2,090	900	490	—	3,480	16,750
		Sub-total	Open			114,310	192,560	75,220	16,410	3,680	—	402,180	415,290	101,970	56,870	4,160	578,290	980,470
			Restricted			5,150	8,860	3,160	410	10	—	17,590	24,450	4,870	2,360	10	31,690	49,280
		Total				124,470	205,610	80,240	16,920	3,690	—	427,930	449,910	108,960	60,160	4,170	623,170	1,051,100

TABLE 21
ANNUAL ALLOWABLE CUT SUMMARY
PROVINCIAL CROWN LAND
FOREST SECTION — PINELAND

(Volume in Cubic Metres per Year)

March, 1986

Forest Section	Management Unit	Level	Zone	Photo Year	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
2	0	III	Closed	1970	1975 Prov. N/A													
			Open	1970	Prov.	62,530	56,020	9,770	6,820	7,070	4,450	146,660	98,460	24,100	12,280	4,130	138,970	285,630
			Restricted	1970	Prov	630	30	30	30	—	—	720	680	140	60	30	910	1,630
			Com. Past	1970	Prov. N/A													
2	3	III	Closed	1970	1981 Prov. N/A													
			Open	1970	Prov	17,600	9,510	2,740	1,920	640	360	32,770	24,670	6,260	2,300	1,140	34,370	67,140
			Restricted	1970	Prov. N/A													
			Com. Past	1970	Prov. N/A													
Total Pineland			Closed		Prov. N/A													
			Open		Prov	80,130	65,530	12,510	8,740	7,710	4,810	179,430	123,130	30,360	14,580	5,270	173,340	352,770
			Restricted		Prov	630	30	30	30	—	—	720	680	140	60	30	910	1,630
			Com. Past		Prov. N/A													
		Total				80,760	65,560	12,540	8,770	7,710	4,810	180,150	128,810	30,500	14,640	5,300	174,250	354,400

TABLE 22
ANNUAL ALLOWABLE CUT SUMMARY
PROVINCIAL CROWN LAND
FOREST SECTION — LAKE WINNIPEG EAST

(Volume in Cubic Metres per Year)

March, 1986

Forest Section	Management Unit	Level	Zone	Photo Year	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
3	0	III	Closed	1970	Prov	10,360	5,020	1,750	710	—	—	17,840	8,510	540	1,260	220	10,530	28,370
		III	Open	1970	Prov	51,040	8,790	4,040	1,480	350	40	65,740	26,580	1,740	3,750	500	32,570	98,310
		III	Restricted	1970	Prov	230	60	80	20	—	—	370	170	—	30	—	200	570
3	1	III	Closed	1977	Prov /FML	25,690	9,900	1,530	330	250	—	37,700	4,310	140	600	40	5,090	42,790
		III	Open	1977	Prov /FML	129,240	72,660	26,430	7,880	10,210	—	246,420	108,460	6,770	10,980	1,360	127,570	373,990
		III	Restricted	1977	Prov /FML	18,470	5,850	2,890	1,020	140	—	28,370	8,850	540	900	140	10,430	38,800
3	5	III	Closed	1966	Prov /FML	1,990	1,520	260	110	30	—	3,910	2,160	50	60	—	2,270	6,180
		III	Open	1966	Prov /FML	22,740	23,610	5,040	1,870	330	—	53,590	11,520	440	690	—	12,650	66,240
		I	Closed	1966	Prov /IWSA E	6,210	5,570	1,610	320	—	—	13,710	—	—	—	—	—	13,710
		I	Open	1966	Prov /IWSA E	16,040	20,940	4,630	1,710	—	—	43,320	—	—	—	—	—	43,320
		I	Closed	1966	Prov	10,760	6,250	2,470	730	—	—	20,210	—	—	—	—	—	20,210
		Sub-total	Closed			18,960	13,340	4,340	1,160	30	—	37,830	2,160	50	60	—	2,270	40,100
		Sub-total	Open			38,780	44,550	9,670	3,580	330	—	96,910	11,520	440	690	—	12,650	109,560
3	6	I	Closed	1966	Prov	27,540	17,530	4,280	1,700	—	—	51,050	—	—	—	—	—	51,050
		I	Open	1966	Prov	23,200	22,540	5,560	1,880	—	—	53,180	—	—	—	—	—	53,180
3	7	II	Open	1966	Prov	75,740	39,130	4,440	1,360	380	—	121,050	28,030	1,100	1,080	—	30,210	151,260
3	8	II	Closed	1976	Prov /IWSA E	—	—	—	—	—	—	—	—	—	—	—	—	—
		II	Open	1976	Prov /IWSA E	43,400	46,610	12,560	3,360	420	—	106,350	28,540	1,010	1,140	—	30,690	137,040
3	9	II	Open	1967	Prov	25,290	31,140	3,310	850	310	—	60,900	24,470	490	640	—	25,600	86,500
		II	Open	1967	Prov /IWSA E	13,910	20,340	2,210	710	240	—	37,410	8,520	330	380	—	9,230	46,640
		Sub-total	Open			39,200	51,480	5,520	1,560	550	—	98,310	32,990	820	1,020	—	34,830	133,140

TABLE 22 (Continued)

Forest Section	Management Unit	Level	Zone	Photo Year	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
Total Lake Winnipeg East			Closed		Prov	48,660	28,800	8,500	3,140	—	—	89,100	8,510	540	1,260	220	10,530	99,630
			Closed		Prov /FML	27,680	11,420	1,790	440	280	—	41,610	6,470	190	660	40	7,360	48,970
			Closed		Prov /IWSA E	6,210	5,570	1,610	320	—	—	13,710	—	—	—	—	—	13,710
		Sub-total	Closed			82,550	45,790	11,900	3,900	280	—	144,420	14,980	730	1,920	260	17,890	162,310
			Open		Prov	175,270	101,600	17,350	5,570	1,040	40	300,870	79,080	3,330	5,470	500	88,380	389,250
			Open		Prov /FML	151,960	96,270	31,470	9,750	10,540	—	300,010	119,980	7,210	11,670	1,360	140,220	440,230
			Open		Prov /IWSA E	73,350	87,890	19,400	5,780	660	—	187,080	37,060	1,340	1,520	—	39,920	227,000
		Sub-total	Open			400,600	285,760	68,220	21,100	12,240	40	787,960	236,120	11,880	18,660	1,860	268,520	1,056,480
			Restricted		Prov	230	60	60	20	—	—	370	170	—	30	—	200	570
			Restricted		Prov /FML	18,470	5,850	2,890	1,020	140	—	28,370	8,850	540	900	140	10,430	38,800
		Sub-total	Restricted			18,700	5,910	2,950	1,040	140	—	28,740	9,020	540	930	140	10,630	39,370
		Total				501,850	337,460	83,070	26,040	12,660	40	961,120	260,120	13,150	21,510	2,260	297,040	1,258,160

TABLE 23
ANNUAL ALLOWABLE CUT SUMMARY
PROVINCIAL CROWN LAND
FOREST SECTION — INTERLAKE

(Volume in Cubic Metres per Year)

March, 1986

Forest Section	Management Unit	Level	Zone	Photo Year	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
4	0	II	Closed	1976	Prov.	30	540	740	720	—	—	2,030	2,180	220	410	—	2,810	4,840
		II	Open	1976	Prov./IWSA.W	5,870	13,500	6,410	5,480	60	—	31,320	22,200	1,930	3,810	40	27,980	59,300
		II	Restricted	1976	Prov.	50	580	940	1,110	—	—	2,680	2,560	250	540	—	3,350	6,010
4	1	II	Open	1976	Prov./IWSA.W	21,080	54,140	26,140	17,700	470	—	119,510	81,710	8,310	13,470	280	103,770	223,280
4	2	III	Open	1981	Prov	1,990	30	1,580	—	—	—	3,600	20,200	2,350	760	100	23,410	27,010
4	3	III	Open	1980	Prov	19,750	10,040	11,690	1,870	350	—	43,700	52,970	7,410	4,250	800	65,510	109,210
4	5	II	Open	1976	Prov.	35,210	16,000	9,910	4,130	110	—	65,360	25,810	3,490	3,810	40	33,150	98,510
		II	Open	1976	Prov./IWSA.W	15,590	28,400	6,730	4,640	240	—	55,600	36,210	3,900	3,750	100	43,960	99,560
		Sub-total	Open			50,800	44,400	16,640	8,770	350	—	120,960	62,020	7,390	7,560	140	77,110	198,070
4	6	II	Open	1979	Prov	43,050	20,470	7,100	2,960	160	—	73,740	29,750	3,170	2,650	—	35,570	109,310
4	7	II	Open	1980	Prov	17,250	15,260	3,880	2,490	150	—	39,030	4,650	1,220	1,810	—	7,680	46,710
		II	Open	1980	Prov./M.F.R.	10,730	4,790	1,990	630	40	—	18,180	1,360	280	380	—	2,020	20,200
		Sub-total	Open			27,980	20,050	5,870	3,120	190	—	57,210	6,010	1,500	2,190	—	9,700	66,910
Total Interlake			Closed		Prov.	30	540	740	720	—	—	2,030	2,180	220	410	—	2,810	4,840
			Open		Prov.	117,250	61,800	34,160	11,450	770	—	225,430	133,380	17,640	13,280	1,020	165,320	390,750
			Open		Prov./IWSA.W	42,520	98,040	39,280	27,820	770	—	208,430	140,120	14,140	21,030	420	175,710	382,140
			Open		Prov./M.F.R.	10,730	4,790	1,990	630	40	—	18,180	1,360	280	380	—	2,020	20,200
		Sub-total	Open			170,500	162,630	75,430	39,900	1,580	—	450,040	274,860	32,080	34,690	1,440	343,050	793,090
			Restricted		Prov.	50	580	940	1,110	—	—	2,680	2,560	250	540	—	3,350	6,010
		Total				170,580	163,730	77,110	41,730	1,580	—	454,730	279,800	32,530	35,640	1,440	349,210	803,940

TABLE 24
ANNUAL ALLOWABLE CUT SUMMARY
PROVINCIAL CROWN LAND
FOREST SECTION — SASKATCHEWAN RIVER

(Volume in Cubic Metres per Year)

March, 1986

Forest Section	Management Unit	Level	Zone	Photo Year	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
5	1	II	Open	1982	Prov.	2,260	3,700	1,530	60	70	—	7,620	1,200	170	220	—	1,590	9,210
		II	Open	1982	Prov./M.F.R.	60,560	28,000	8,950	310	610	—	98,430	10,150	950	1,980	—	13,080	111,490
		Sub-total	Open			62,820	31,700	10,480	370	680	—	106,050	11,350	1,120	2,180	—	14,650	120,700
5	2	II	Open	1982	Prov./M.F.R.	6,270	9,780	4,320	110	130	—	20,620	8,300	940	630	10	9,880	30,500
5	3	II	Open	1982	Prov./M.F.R.	91,490	46,680	25,980	860	410	—	165,320	36,580	3,230	4,460	20	44,290	209,610
5	4	II	Open	1982	Prov./M.F.R.	21,780	23,650	5,610	170	250	—	51,440	5,070	780	860	—	6,710	58,150
5	5	II	Open	1982	Prov./M.F.R.	14,560	12,510	4,530	160	90	—	31,850	5,530	660	650	—	6,840	38,690
5	6	II	Open	1982	Prov./M.F.R.	25,120	34,080	21,300	740	290	—	81,530	26,330	2,940	2,910	10	32,190	113,720
5	7	II	Closed	1982	Prov.	1,290	1,120	260	—	—	—	2,670	170	30	40	—	240	2,910
		II	Open	1982	Prov.	8,060	12,400	6,690	340	110	—	27,600	3,100	520	710	—	4,330	31,930
		II	Restricted	1982	Prov.	1,580	1,960	1,210	30	—	—	4,780	440	70	240	—	750	5,510
Total Saskatchewan River		II	Closed	1982	Prov.	1,290	1,120	260	—	—	—	2,670	170	30	40	—	240	2,910
		II	Open	1982	Prov.	10,320	16,100	8,220	400	180	—	35,220	4,300	680	930	—	5,920	41,140
		II	Open	1982	Prov./M.F.R.	219,760	154,710	70,590	2,350	1,780	—	449,190	91,960	9,500	11,470	40	112,970	562,160
		Sub-total	Open	1982		230,080	170,810	78,810	2,750	1,960	—	484,410	96,260	10,190	12,400	40	118,890	603,300
			Restricted	1982	Prov.	1,580	1,960	1,210	30	—	—	4,780	440	70	240	—	750	5,510
		Total				232,930	173,890	80,280	2,780	1,960	—	491,840	96,870	10,290	12,680	40	119,880	611,720

TABLE 25
ANNUAL ALLOWABLE CUT SUMMARY
PROVINCIAL CROWN LAND
FOREST SECTION — HIGHROCK

(Volume in Cubic Metres per Year)

March, 1986

Forest Section	Management Unit	Level	Zone	Photo Year	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
6	0	II	Closed	1966	Prov.	4,530	9,320	4,790	230	—	—	18,870	7,580	570	820	—	8,970	27,840
		II	Open	1966	Prov.	23,160	24,100	9,290	530	—	—	57,080	12,350	850	1,780	—	14,980	72,060
		II	Restricted	1966	Prov.	4,780	11,890	7,310	540	—	—	24,520	6,900	570	880	—	8,350	32,870
6	1	II	Open	1966	Prov./M.F.R.	9,260	28,720	7,920	300	60	—	46,260	18,630	1,590	1,310	—	21,530	67,790
6	2	II	Open	1966	Prov./M.F.R.	50,970	67,590	21,430	1,020	90	—	141,100	33,750	2,440	4,760	—	40,950	182,050
6	3	II	Open	1968	Prov./M.F.R.	80,330	128,530	17,120	860	90	—	226,930	41,350	3,160	5,350	—	49,860	276,790
6	4	II	Open	1969	Prov./M.F.R.	72,880	142,630	16,730	770	120	—	233,140	38,220	2,920	4,930	—	46,070	279,210
6	5	II	Open	1970	Prov./M.F.R.	55,420	70,900	10,160	340	60	—	136,880	31,280	2,010	4,060	—	37,350	174,230
6	6	II	Open	1969	Prov./M.F.R.	31,580	83,590	10,870	410	90	—	126,540	33,400	2,630	3,310	—	39,340	165,880
Total Highrock		II	Closed		Prov.	4,530	9,320	4,790	230	—	—	18,870	7,580	570	820	—	8,970	27,840
		II	Open		Prov.	23,160	24,100	9,290	530	—	—	57,080	12,350	850	1,780	—	14,980	72,060
		II	Open		Prov./M.F.R.	300,450	521,980	84,230	3,700	510	—	910,850	196,630	14,750	23,720	—	235,100	1,145,950
		Sub-total	Open			323,610	546,080	93,520	4,230	510	—	967,930	208,980	15,600	25,500	—	250,080	1,218,010
		II	Restricted		Prov.	4,780	11,890	7,310	540	—	—	24,520	6,900	570	880	—	8,350	32,870
		TOTAL				332,920	567,270	105,620	5,000	510	—	1,011,320	233,460	16,740	27,200	—	267,400	1,278,720

TABLE 26
ANNUAL ALLOWABLE CUT SUMMARY
PROVINCIAL CROWN LAND
FOREST SECTION — CHURCHILL RIVER

(Volume in Cubic Metres per Year)

March, 1986

Forest Section	Management Unit	Level	Zone	Photo Year	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
7	1	II	Open	1975	Prov.	4,020	10,700	350	—	—	—	15,070	850	270	850	—	1,970	17,040
7	2	II	Open	1969	Prov.	5,670	49,330	820	—	—	—	55,820	2,170	740	2,010	—	4,920	60,740
7	3	II	Open	1975	Prov.	140	10,590	170	—	—	—	10,900	—	—	150	—	150	11,050
7	4	II	Open	1975	Prov.	—	—	—	—	—	—	—	—	—	—	—	—	—
7	5	II	Open	1969	Prov.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total Churchill River		II	Open		Prov.	9,830	70,620	1,340	—	—	—	81,790	3,020	1,010	3,010	—	7,040	88,830

TABLE 27
ANNUAL ALLOWABLE CUT SUMMARY
PROVINCIAL CROWN LAND
FOREST SECTION — NELSON RIVER

(Volume in Cubic Metres per Year)

March, 1986

Forest Section	Management Unit	Level	Zone	Photo Year	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
8	2	II	Open	1986	Prov.	29,420	61,970	24,550	3,590	30	—	119,560	26,150	3,360	4,500	—	34,010	153,570
8	3	II	Closed	1965	Prov./M.F.R. N/A													
		II	Open	1965	Prov./M.F.R.	72,890	151,780	35,820	3,230	170	—	263,890	61,220	6,660	6,030	—	73,910	337,800
		II	Open	1965	Prov./Inco	790	4,180	800	120	—	—	5,890	820	80	120	—	1,020	6,910
		Sub-total	Open			73,680	155,960	36,620	3,350	170	—	269,780	62,040	6,740	6,150	—	74,930	344,710
8	4	II	Closed	1965	Prov./M.F.R. N/A													
		II	Open	1965	Prov./M.F.R.	55,380	116,670	28,850	3,510	120	—	204,530	37,380	4,260	4,800	—	46,440	250,970
		II	Open	1965	Prov./Inco	1,380	3,680	820	60	—	—	5,940	2,040	200	170	—	2,410	8,350
		Sub-total	Open			56,760	120,350	29,670	3,570	120	—	210,470	39,420	4,460	4,970	—	48,850	259,320
8	5	II	Closed	1965	Prov./M.F.R.	600	2,860	1,130	200	—	—	4,790	1,190	90	110	—	1,390	6,180
		II	Open	1965	Prov./M.F.R.	40,090	97,500	15,800	1,440	90	—	154,920	26,050	3,200	3,090	—	32,340	187,260
		II	Open	1965	Prov./Inco	3,280	2,970	860	60	—	—	7,190	3,170	260	170	—	3,600	10,790
		Sub-total	Open			43,370	100,470	16,680	1,500	90	—	162,110	29,220	3,460	3,260	—	35,940	198,050
		II	Restricted	1965	Prov./M.F.R.	420	5,980	1,520	260	—	—	8,180	500	60	140	—	700	8,880
8	6	II	Open	1965	Prov./M.F.R.	16,990	50,600	5,390	420	90	—	73,490	4,500	1,100	910	—	6,510	80,000
8	7	II	Open	1970	Prov./M.F.R.	23,740	34,880	5,150	230	30	—	64,030	13,420	1,670	1,640	—	16,730	80,760
		II	Open	1970	Prov./Inco	5,860	7,390	1,360	—	—	—	14,610	5,130	510	420	—	6,060	20,670
		Sub-total	Open			29,600	42,270	6,510	230	30	—	78,640	18,550	2,180	2,060	—	22,790	101,430

TABLE 27 (Continued)

Forest Section	Management Unit	Level	Zone	Photo Year	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
8	8	II	Open	1970	Prov./M.F.R.	2,800	2,630	1,250	60	—	—	6,540	3,190	320	290	—	3,800	10,340
8	9	II	Open	1970	Prov./M.F.R.	9,510	15,910	4,960	200	30	—	30,610	17,870	1,550	1,330	—	20,750	51,360
		II	Open	1970	Prov./Inco	30	1,120	90	—	—	—	1,240	—	30	—	—	30	1,270
		Sub-total	Open			9,540	17,030	5,050	200	30	—	31,850	17,870	1,580	1,330	—	20,780	52,630
Total Nelson River		II	Closed		Prov./M.F.R.	600	2,860	1,130	200	—	—	4,790	1,190	90	110	—	1,390	6,180
			Open		Prov.	29,420	61,970	24,550	3,590	30	—	119,560	26,150	3,360	4,550	—	34,010	153,570
			Open		Prov./M.F.R.	221,200	469,970	97,220	9,090	530	—	798,010	163,630	18,760	18,080	—	200,480	998,490
			Open		Prov./Inco	11,340	19,340	3,950	240	—	—	34,870	11,160	1,080	880	—	13,120	47,990
		Sub-total	Open			261,980	551,280	125,720	12,920	560	—	952,440	200,940	23,200	23,470	—	247,610	1,200,050
			Restricted		Prov./M.F.R.	420	5,960	1,520	260	—	—	8,180	500	60	140	—	700	8,880
		TOTAL				262,980	560,120	126,370	13,380	560	—	965,410	202,630	23,350	23,720	—	249,700	1,215,100

TABLE 28
ANNUAL ALLOWABLE CUT SUMMARY
PROVINCIAL CROWN LAND
FOREST SECTION — HAYES RIVER

(Volume in Cubic Metres per Year)

March, 1986

Forest Section	Management Unit	Level	Zone	Photo Year	Data	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
9	0	II	Open	1973	Prov.	161,690	137,540	12,200	6,790	—	—	318,220	72,550	16,280	12,520	—	101,350	419,570
9	1	II	Open	1973	Prov.	55,810	47,040	2,950	1,270	—	—	107,070	18,000	1,590	3,200	—	22,790	129,860
9	2	II	Open	1973	Prov.	57,510	57,840	4,480	1,640	—	—	121,470	20,330	1,790	3,560	—	25,680	147,150
9	3	II	Open	1969	Prov	94,080	51,370	5,800	2,000	—	—	153,250	19,540	1,300	3,910	—	24,750	178,000
9	4	II	Open	1973	Prov./M.F.R.	95,850	70,900	9,970	3,000	30	—	179,750	27,890	2,130	5,720	—	35,740	215,490
9	5	II	Open	1973	Prov	124,650	93,700	9,490	4,110	—	—	231,950	45,470	3,980	7,880	—	57,310	289,260
9	6	II	Open	1973	Prov.	72,500	49,380	5,550	2,260	—	—	129,670	23,270	2,010	4,330	—	29,610	159,280
9	7	II	Open	1973	Prov	98,000	71,810	2,750	1,440	—	—	174,000	22,630	2,040	4,390	—	29,060	203,060
9	8	II	Open	1973	Prov.	66,490	39,330	1,220	700	—	—	107,740	10,620	850	2,440	—	13,910	121,650
9	9	II	Open	1969	Prov./M.F.R.	43,320	39,930	1,610	430	—	—	85,290	8,870	850	1,890	—	11,610	96,900
Total Hayes River		II	Open		Prov.	730,730	547,990	44,440	20,210	—	—	1,343,370	232,410	29,820	42,230	—	304,460	1,647,830
		II	Open		Prov./M.F.R.	139,170	110,830	11,580	3,430	30	—	265,040	35,780	2,980	7,610	—	47,350	312,390
		II	Open		All	869,900	658,820	56,020	23,640	30	—	1,608,410	268,170	32,800	49,840	—	351,810	1,960,220

TABLE 29
FOREST BALANCE BY FOREST SECTIONS PROVINCIAL CROWN LANDS — OPEN

(VOLUMES IN CUBIC METRES PER YEAR)[1]

Forest Section	Total Estimated Growth	TOTAL DRAIN[2]			Forest Balance	Drain/ Growth in %
		Harvesting	Fire Loss	Total		
Softwoods						
Aspen Parkland	10,670	1,145.0	2,990	4,135.0	6,535.0	39
Mountain	777,170	281,806.6	6,650	288,456.6	488,713.4	37
Pineland	238,560	150,723.8	32,590	183,313.8	55,246.2	77
Lake Winnipeg East	1,298,930	299,089.6	702,680	1,001,769.6	297,160.4	77
Interlake	642,470	64,266.2	31,880	96,146.2	546,323.8	15
Saskatchewan River	592,030	241,509.6	24,950	266,459.6	325,570.4	45
Highrock	1,824,670	398,600.2	386,080	784,680.2	1,039,989.8	43
Churchill River	645,460	—	148,310	148,310.0	497,150.0	23
Nelson River	1,759,720	9,912.8	201,000	210,912.8	1,548,807.2	12
Hayes River	2,164,790	—	402,580	402,580.0	1,762,210.0	19
Total Softwood	9,954,470	1,447,053.8	1,939,710	3,386,763.8	6,567,706.2	34
Hardwoods						
Aspen Parkland	542,230	4,290.4	8,560	12,850.4	529,379.6	2
Mountain	987,030	42,415.2	34,670	77,085.2	909,944.8	8
Pineland	439,340	86,297.2	38,430	124,727.2	314,612.8	28
Lake Winnipeg East	1,161,670	28,682.0	196,140	224,822.0	936,848.0	19
Interlake	662,530	7,755.6	63,830	71,585.6	590,944.4	11
Saskatchewan River	328,670	2,812.4	4,680	7,492.4	321,177.6	2
Highrock	551,030	2,709.0	107,020	109,729.0	441,301.0	20
Churchill River	48,940	—	6,780	6,780.0	42,160.0	14
Nelson River	644,880	2,470.4	47,280	49,750.4	595,129.6	8
Hayes River	706,510	—	55,840	55,840.0	650,670.0	8
Total Hardwood	6,072,830	177,432.2	563,230	740,662.2	5,332,167.8	12
TOTAL	16,027,300	1,624,486.0	2,502,940	4,127,426.0	11,899,874.0	26

1. Based on Five Year average 1981 to 1985
2. Includes "causes" for which date is available only

TABLE 30
SPECIES DRAIN

(Percent of Drain/Growth[1] in %)

Forest Section	Pine	Spruce	Balsam Fir	Other Softwood	Total Softwood	Aspen Poplar	Other Hardwood	Total Hardwood	Total
Aspen Parkland	66	24	—	—	39	3	2	2	3
Mountain	23	52	2	17	37	7	12	8	21
Pineland	74	106	18	49	77	28	34	28	45
Lake Winnipeg East	64	102	57	211	77	18	31	19	50
Interlake	6	29	3	52	15	11	6	11	13
Saskatchewan River	40	51	1	4	45	2	4	2	30
Highrock	42	44	8	—	43	20	23	20	38
Churchill River[2]	26	22	—	—	23	6	25	14	22
Nelson River	10	13	8	—	12	7	12	8	11
Hayes River[2]	14	23	13	—	19	7	2	8	16
Forest Zone	30	38	13	93	34	12	14	12	26

[1]Based on 5-year average 1981 to 1985 of drain due to wildfire and harvesting.
[2]Drain accountable entirely to wildfire.

TABLE 31
MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1981 — 1982

(Volume in cubic metres per year)

Species/Item	Aspen Parkland	Mountain	Pineland	L. Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
PINE											
Increment	960	356,970	118,040	752,560	320,990	284,420	629,710	227,170	482,520	1,141,760	4,315,100
Harvest	853	86,393	82,285	72,861	16,732	95,276	222,310	—	3,496	—	580,206
Fire Loss	10	—	1,930	93,820	930	39,270	505,580	260,750	194,080	701,590	1,797,960
Total Drain	863	86,393	84,215	166,681	17,662	134,546	727,890	260,750	197,576	701,590	2,378,166
Drain/Growth %	90	24	71	22	6	47	116	115	41	61	55
Forest Balance	97	270,577	33,825	585,879	303,328	149,874	-98,180	-33,580	284,944	440,170	1,936,934
SPRUCE											
Increment	9,700	394,360	84,540	466,470	246,430	298,200	1,179,770	418,290	1,243,920	979,460	5,321,140
Harvest	1,301	227,311	50,401	230,502	31,841	147,071	343,167	—	7,164	—	1,038,758
Fire Loss	1,600	500	32,160	129,040	4,420	26,130	1,355,320	409,010	700,990	1,051,830	3,711,000
Total Drain	2,901	227,811	82,561	359,542	36,261	173,201	1,698,487	409,010	708,154	1,051,830	4,749,758
Drain/Growth %	30	58	98	77	15	58	144	98	57	107	89
Forest Balance	6,799	166,549	1,979	106,928	210,169	124,999	-518,717	9,280	535,766	-72,370	571,382
BALSAM FIR											
Increment	—	20,780	17,490	69,740	70,600	7,430	15,190	—	33,280	43,570	278,080
Harvest	—	691	377	3,383	50	—	—	—	—	—	4,501
Fire Loss	20	20	790	4,660	20	100	5,900	—	11,860	22,750	46,140
Total Drain	20	711	1,167	8,063	70	100	5,900	—	11,860	22,750	50,641
Drain/Growth %	—	3	7	12	—	1	39	—	36	52	18
Forest Balance	-20	20,069	16,323	61,677	70,530	7,330	9,290	—	21,420	20,820	227,439
OTHER SOFTWOODS											
Increment	10	5,060	18,490	10,160	4,450	1,960	—	—	—	—	40,150
Harvest	—	13	1,945	1,134	—	1	—	—	—	—	3,093
Fire Loss	160	310	8,170	2,220	110	290	3,360	920	4,440	2,360	22,340
Total Drain	160	323	10,115	3,354	110	291	3,360	920	4,440	2,360	25,423
Drain/Growth %	—	6	55	33	2	15	—	—	—	—	63
Forest Balance	-150	4,737	8,375	6,806	4,340	1,669	-3,360	-920	-4,440	-2,360	14,717
TOTAL SOFTWOODS											
Increment	10,670	777,170	238,580	1,298,930	642,470	592,030	1,824,670	645,460	1,759,720	2,164,790	9,954,470
Harvest	2,154	314,408	135,008	307,880	48,623	242,348	565,477	—	10,660	—	1,626,558
Fire Loss	1,790	830	43,050	229,760	5,480	65,790	1,870,160	670,680	911,370	1,778,530	5,577,440
Total Drain	3,944	315,238	178,058	537,640	54,103	308,138	2,435,637	670,680	922,030	1,778,530	7,203,998
Drain/Growth %	37	41	75	41	8	52	133	104	52	82	72
Forest Balance	6,726	461,932	60,502	761,290	588,367	283,892	-610,967	-25,220	837,690	386,260	2,750,472

PLEASE NOTE. (-) in front of numbers indicates negatives

TABLE 31
MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1981 — 1982

(Volume in cubic metres per year)

Species/Item	Aspen Parkland	Mountain	Pineland	L. Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
POPLAR											
Increment	396,780	895,680	384,790	1,075,230	580,870	275,660	489,420	26,140	577,630	612,010	5,316,210
Harvest	2,827	21,350	65,753	16,043	6,829	1,293	—	—	2,190	—	116,285
Fire Loss	3,220	2,300	35,670	46,800	8,310	7,240	463,000	7,620	191,150	189,630	954,940
Total Drain	6,047	23,650	101,423	62,843	15,139	8,533	463,000	7,620	193,340	189,630	1,071,225
Drain/Growth %	2	3	26	6	3	3	95	27	33	31	20
Forest Balance	390,733	872,030	283,367	1,012,387	565,731	267,127	26,420	20,520	384,290	422,380	4,244,985
OTHER HARDWOODS											
Increment	145,450	91,350	54,550	86,440	81,660	53,010	61,610	20,800	67,250	94,500	756,620
Harvest	1,361	8,884	14,976	9,067	2,415	1,667	—	—	865	—	39,235
Fire Loss	570	100	7,550	4,540	250	1,180	61,530	23,050	34,670	56,660	190,100
Total Drain	1,931	8,984	22,526	13,607	2,665	2,847	61,530	23,050	35,535	56,660	229,335
Drain/Growth %	1	10	41	16	3	5	100	111	53	60	30
Forest Balance	143,519	82,366	32,024	72,833	78,995	50,163	80	-2,250	31,715	37,840	527,285
TOTAL HARDWOODS											
Increment	542,230	987,030	439,340	1,161,670	662,530	328,670	551,030	48,940	644,880	706,510	6,072,830
Harvest	4,188	30,234	80,729	25,110	9,244	2,960	—	—	3,055	—	155,520
Fire Loss	3,790	2,400	43,220	51,340	8,560	8,420	524,530	30,670	225,820	246,290	1,145,040
Total Drain	7,978	32,634	123,949	76,450	17,804	11,380	524,530	30,670	228,875	246,290	1,300,560
Drain/Growth %	1	3	28	7	3	3	95	63	35	35	21
Forest Balance	534,252	954,396	315,391	1,085,220	644,726	317,290	26,500	18,270	416,005	460,220	4,772,270
TOTAL ALL SPECIES											
Increment	552,900	1,764,200	677,900	2,460,600	1,305,000	920,700	2,375,700	694,400	2,404,600	2,871,300	16,027,300
Harvest	6,342	344,642	215,737	332,990	57,867	245,308	565,477	—	13,715	—	1,782,078
Fire Loss	5,580	3,230	86,270	281,100	14,040	74,210	2,394,690	701,350	1,137,190	2,024,820	6,722,480
Total Drain	11,922	347,872	302,007	614,090	71,907	319,518	2,960,167	701,350	1,150,905	2,024,820	8,504,558
Drain/Growth %	2	20	45	25	6	35	125	101	48	71	53
Forest Balance	540,978	1,416,328	375,893	1,846,510	1,233,093	601,182	-584,467	-6,950	1,253,695	846,480	7,522,742

TABLE 32
MANITOBA FOREST SECTION
BY FOREST SECTION AND SPECIES WORKING GROUP
1982 — 1983

(Volume in cubic metres per year)

Species/Item	Aspen Parkland	Mountain	Pineland	L. Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
PINE											
Increment	960	356,970	118,040	752,560	320,990	284,420	629,710	227,170	482,520	1,141,760	4,315,100
Harvest	507	89,827	84,770	57,501	12,190	59,557	138,702	—	6,559	—	449,613
Fire Loss	—	1,450	650	2,620	13,080	1,800	12,060	19,350	370	18,950	70,330
Total Drain	507	91,277	85,420	60,121	25,270	61,357	150,762	19,350	6,929	18,950	519,943
Drain/Growth %	53	26	72	8	8	22	24	9	1	2	12
Forest Balance	453	265,693	32,620	692,439	295,720	223,063	478,948	207,820	475,591	1,122,810	3,795,157
SPRUCE											
Increment	9,700	394,360	84,540	466,470	246,430	298,200	1,179,770	418,290	1,243,920	979,460	5,321,140
Harvest	579	180,569	74,972	221,345	51,545	92,715	216,337	—	4,661	—	842,723
Fire Loss	—	4,300	3,300	17,060	18,350	870	10,170	29,880	1,390	69,060	154,380
Total Drain	579	184,869	78,272	238,405	69,895	93,585	226,507	29,880	6,051	69,060	997,103
Drain/Growth %	6	47	93	51	28	31	19	7	—	7	19
Forest Balance	9,121	209,491	6,268	228,065	176,535	204,615	953,263	388,410	1,237,869	910,400	4,324,037
BALSAM FIR											
Increment	—	20,780	17,490	69,740	70,600	7,430	15,190	—	33,280	43,570	278,080
Harvest	—	—	552	1,248	57	—	—	—	—	—	1,857
Fire Loss	—	—	310	3,380	540	10	30	—	—	3,620	7,890
Total Drain	—	—	862	4,628	597	10	30	—	—	3,620	9,747
Drain/Growth %	—	—	5	7	1	—	—	—	—	8	4
Forest Balance	—	20,780	16,628	65,112	70,003	7,420	15,160	—	33,280	39,950	268,333
OTHER SOFTWOODS											
Increment	10	5,060	18,490	10,160	4,450	1,980	—	—	—	—	40,150
Harvest	—	262	981	1,384	9	25	—	—	—	—	2,661
Fire Loss	—	2,540	800	1,450	2,720	—	-20	-50	—	-40	7,720
Total Drain	—	2,902	1,781	2,834	2,729	25	20	50	—	40	10,381
Drain/Growth %	—	57	10	28	61	1	—	—	—	—	26
Forest Balance	10	2,158	16,709	7,326	1,721	1,955	-20	-50	—	-40	29,769
TOTAL SOFTWOODS											
Increment	10,670	777,170	238,560	1,298,930	642,470	592,030	1,824,670	645,460	1,759,720	2,164,790	9,954,470
Harvest	1,066	270,658	161,275	281,478	63,801	152,297	355,039	—	11,220	—	1,296,854
Fire Loss	—	8,390	5,060	24,510	34,690	2,680	22,280	49,280	1,760	91,670	240,320
Total Drain	1,066	279,048	166,335	305,988	98,491	154,977	377,319	49,280	12,980	91,670	1,537,174
Drain/Growth %	10	36	70	24	15	26	21	8	1	4	15
Forest Balance	9,584	498,122	72,225	992,942	543,979	437,053	1,447,351	596,180	1,746,740	2,073,120	8,417,296

TABLE 32
MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1982 — 1983

(Volume in cubic metres per year)

Species/Item	Aspen Parkland	Mountain	Pineland	L. Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
POPLAR											
Increment	396,780	895,680	384,790	1,075,230	580,870	275,660	489,420	28,140	577,630	612,010	5,316,210
Harvest	4,022	36,080	61,277	25,683	2,842	3,040	—	—	1,197	—	134,141
Fire Loss	—	2,250	10,470	4,090	16,550	1,160	3,270	520	400	7,920	46,630
Total Drain	4,022	38,330	71,747	29,773	19,392	4,200	3,270	520	1,597	7,920	180,771
Drain/Growth %	1	4	19	3	3	2	1	2	—	1	3
Forest Balance	392,758	857,350	313,043	1,045,457	561,478	271,460	486,150	27,620	576,033	604,090	5,135,439
OTHER HARDWOODS											
Increment	145,450	91,350	54,550	86,440	81,660	53,010	61,610	20,800	67,250	95,400	756,620
Harvest	1,597	8,956	19,165	11,739	1,607	941	2,197	—	895	—	47,097
Fire Loss	—	400	800	420	1,180	100	610	1,720	20	2,930	8,180
Total Drain	1,597	9,356	19,965	12,159	2,787	1,041	2,807	1,720	915	2,930	55,277
Drain/Growth %	1	10	37	14	3	2	5	8	1	3	7
Forest Balance	143,853	81,994	34,585	74,281	78,873	51,969	58,803	19,080	66,335	91,570	701,343
TOTAL HARDWOODS											
Increment	542,230	987,030	439,340	1,161,670	662,530	328,670	551,030	48,940	644,880	706,510	6,072,830
Harvest	5,619	45,036	80,442	37,422	4,449	3,981	2,197	—	2,092	—	181,238
Fire Loss	—	2,650	11,270	4,510	17,730	1,260	3,880	2,240	420	10,850	54,810
Total Drain	5,619	47,686	91,712	41,932	22,179	5,241	6,077	2,240	2,512	10,850	236,048
Drain/Growth %	1	5	21	4	3	2	1	5	—	2	4
Forest Balance	536,611	939,344	347,628	1,119,738	640,351	323,429	544,953	46,700	642,368	695,660	5,836,782
TOTAL ALL SPECIES											
Increment	552,900	1,764,200	677,900	2,460,600	1,305,000	920,700	2,375,700	694,400	2,404,600	2,871,300	16,027,300
Harvest	6,705	315,694	241,717	318,900	68,250	156,278	357,236	—	13,312	—	1,478,092
Fire Loss	—	11,040	16,330	29,020	52,420	3,940	26,160	51,520	2,180	102,520	295,130
Total Drain	6,705	326,734	258,047	347,920	120,670	160,218	383,396	51,520	15,492	102,520	1,773,222
Drain/Growth %	1	19	38	14	9	17	16	7	1	4	11
Forest Balance	546,195	1,437,466	419,853	2,112,680	1,184,330	760,482	1,992,304	642,880	2,389,108	2,768,780	14,254,078

TABLE 33
MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1983 — 1984

(Volume in cubic metres per year)

Species/Item	Aspen Parkland	Mountain	Pineland	L. Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
PINE											
Increment	960	356,970	118,040	752,560	320,990	284,420	629,710	227,170	482,520	1,141,760	4,315,100
Harvest	104	73,347	103,630	57,126	6,492	62,744	146,404	—	4,673	—	454,520
Fire Loss	—	940	1,050	1,174,670	1,040	37,060	670	1,300	130	3,130	1,219,990
Total Drain	104	74,287	104,680	1,231,796	7,532	99,804	147,074	1,300	4,803	3,130	1,674,510
Drain/Growth %	11	21	89	164	2	35	23	1	1	—	39
Forest Balance	856	282,683	13,360	-479,236	313,458	184,616	482,636	225,870	477,717	1,138,630	2,640,590
SPRUCE											
Increment	9,700	394,360	84,540	466,470	246,430	298,200	1,179,770	418,290	1,243,920	979,460	5,321,140
Harvest	596	219,689	66,781	177,577	50,729	96,335	224,783	—	4,189	—	840,679
Fire Loss	50	30	650	665,790	10,640	7,140	4,660	1,280	350	9,010	699,600
Total Drain	646	219,719	67,431	843,367	61,369	103,475	229,443	1,280	4,539	9,010	1,540,279
Drain/Growth %	7	56	80	181	25	35	19	—	—	1	29
Forest Balance	9,054	174,641	17,109	-376,897	185,061	194,725	950,327	417,010	1,239,381	970,450	3,780,861
BALSAM FIR											
Increment	—	20,780	17,490	69,740	70,600	7,430	15,190	—	33,280	43,570	278,080
Harvest	—	523	3,632	1,716	135	—	—	—	—	—	6,006
Fire Loss	—	—	10	49,560	370	—	—	—	100	700	50,740
Total Drain	—	523	3,642	51,276	505	—	—	—	100	700	56,746
Drain/Growth %	—	3	21	74	1	—	—	—	—	2	20
Forest Balance	—	20,257	13,848	18,464	70,095	7,430	15,190	—	33,180	42,870	221,334
OTHER SOFTWOODS											
Increment	10	5,060	18,490	10,160	4,450	1,980	—	—	—	—	40,150
Harvest	3	52	3,816	2,016	13	—	—	—	—	—	5,900
Fire Loss	10	—	110	69,230	2,840	120	—	—	—	—	72,310
Total Drain	13	52	3,926	71,246	2,853	120	—	—	—	—	78,210
Drain/Growth %	130	1	21	701	64	6	—	—	—	—	195
Forest Balance	-3	5,008	14,564	-61,086	1,597	1,860	—	—	—	—	-38,060
TOTAL SOFTWOODS											
Increment	10,670	777,170	238,560	1,298,930	642,470	592,030	1,824,670	645,460	1,759,720	2,164,790	9,954,470
Harvest	703	293,611	177,859	238,435	57,369	159,079	371,187	—	8,862	—	1,307,105
Fire Loss	60	970	1,820	1,959,250	14,890	44,320	5,330	2,580	580	12,840	2,042,640
Total Drain	763	294,581	179,679	2,197,685	72,259	203,399	376,517	2,580	9,442	12,840	3,349,745
Drain/Growth %	7	38	75	169	11	34	21	—	1	1	34
Forest Balance	9,907	482,589	58,881	-898,755	570,211	388,631	1,448,153	642,880	1,750,278	2,151,950	6,604,725

TABLE 33
MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1983 — 1984

(Volume in cubic metres per year)

Species/Item	Aspen Parkland	Mountain	Pineland	L. Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
POPLAR											
Increment	396,780	895,680	384,790	1,075,230	580,870	275,680	489,420	28,140	577,630	612,010	5,316,210
Harvest	3,781	38,670	79,287	21,906	6,325	1,797	4,193	—	2,810	—	158,769
Fire Loss	1,210	250	1,020	514,790	8,010	4,090	410	—	70	1,170	531,020
Total Drain	4,991	38,920	80,307	536,696	14,335	5,887	4,603	—	2,880	1,170	689,789
Drain/Growth %	1	4	21	50	2	2	1	—	—	—	13
Forest Balance	391,789	856,760	304,483	538,534	566,535	269,773	484,817	28,140	574,750	610,840	4,626,421
OTHER HARDWOODS											
Increment	145,450	91,350	54,550	86,440	81,660	53,010	61,610	20,800	67,250	94,500	756,620
Harvest	555	9,303	11,261	8,180	1,193	877	2,047	—	1,042	—	34,458
Fire Loss	200	20	320	50,990	510	570	90	150	20	490	53,360
Total Drain	755	9,323	11,581	59,170	1,703	1,447	2,137	150	1,062	490	87,818
Drain/Growth %	1	10	21	68	2	3	3	1	2	1	12
Forest Balance	144,695	82,027	42,969	27,270	79,957	51,563	59,473	20,650	66,188	94,010	668,802
TOTAL HARDWOODS											
Increment	542,230	987,030	439,340	1,161,670	662,530	328,670	551,030	48,940	644,880	706,510	6,072,830
Harvest	4,336	47,973	90,548	30,086	7,518	2,674	6,240	—	3,852	—	193,227
Fire Loss	1,410	270	1,340	565,780	8,520	4,660	500	150	90	1,660	584,380
Total Drain	5,746	48,243	91,888	595,866	16,038	7,334	6,740	150	3,942	1,660	777,607
Drain/Growth %	1	5	21	51	2	2	1	—	1	—	13
Forest Balance	536,484	938,787	347,452	565,804	646,492	321,336	544,290	48,790	640,938	704,850	5,295,223
TOTAL ALL SPECIES											
Increment	552,900	1,764,200	677,900	2,480,600	1,305,000	920,700	2,375,700	694,400	2,404,600	2,871,300	16,027,300
Harvest	5,039	341,584	268,407	268,521	64,887	161,753	377,427	—	12,714	—	1,500,332
Fire Loss	1,470	1,240	3,160	2,525,030	23,410	48,980	5,830	2,730	670	14,500	2,627,020
Total Drain	6,509	342,824	271,567	2,793,551	88,297	210,733	383,257	2,730	13,384	14,500	4,127,352
Drain/Growth %	1	19	40	114	7	23	16	—	1	1	26
Forest Balance	546,391	1,421,376	406,333	-332,951	1,216,703	709,967	1,992,443	691,670	2,391,216	2,856,800	11,899,948

TABLE 34
MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1984 — 1985

(Volume in cubic metres per year)

Species/Item	Aspen Parkland	Mountain	Pineland	L. Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
PINE											
Increment	960	356,970	118,040	752,560	320,990	284,420	629,710	227,170	482,520	1,141,760	4,315,100
Harvest	943	76,538	73,484	68,092	12,315	90,192	210,446	—	5,832	—	538,842
Fire Loss	—	100	4,460	372,250	11,450	820	3,500	1,140	9,110	26,170	429,000
Total Drain	943	76,638	77,944	441,342	23,765	91,012	213,946	1,140	14,942	26,170	967,842
Drain/Growth %	98	21	66	59	7	32	34	1	3	2	22
Forest Balance	17	280,332	40,096	311,218	297,225	193,408	415,764	226,030	467,578	1,115,590	3,347,258
SPRUCE											
Increment	9,700	394,360	84,540	488,470	246,430	298,200	1,170,770	418,290	1,243,920	970	5,321,140
Harvest	112	190,138	57,701	208,542	65,337	130,881	305,388	—	3,870	—	961,969
Fire Loss	—	1,060	35,410	211,700	38,660	1,600	5,730	370	18,490	37,980	351,220
Total Drain	112	191,198	93,111	420,242	104,217	132,481	311,118	370	22,360	37,980	1,313,189
Drain/Growth %	1	48	110	90	42	44	26	—	2	4	25
Forest Balance	9,588	203,162	-8,571	48,228	142,213	165,719	869,652	417,920	1,221,560	941,480	4,007,951
BALSAM FIR											
Increment	—	20,780	17,490	69,740	70,600	7,430	15,190	—	33,260	43,570	278,060
Harvest	—	13	2,960	1,026	1,075	—	—	—	—	—	5,074
Fire Loss	—	30	860	18,650	8,110	—	—	—	200	1,700	29,550
Total Drain	—	43	3,820	19,676	9,185	—	—	—	200	1,700	34,624
Drain/Growth %	—	—	22	28	13	—	—	—	1	4	12
Forest Balance	—	20,737	13,670	50,064	61,415	7,430	15,190	—	33,060	41,870	243,456
OTHER SOFTWOODS											
Increment	10	5,090	18,490	10,160	4,450	1,980	—	—	—	—	40,150
Harvest	—	63	4,537	630	574	—	—	—	—	—	5,804
Fire Loss	—	—	8,940	14,940	4,120	—	—	—	110	180	28,290
Total Drain	—	63	13,477	15,570	4,694	—	—	—	110	180	34,094
Drain/Growth %	—	1	73	153	105	—	—	—	—	—	85
Forest Balance	10	4,997	5,013	-5,410	-244	1,980	—	—	-110	-180	6,056
TOTAL SOFTWOODS											
Increment	10,670	777,170	238,560	1,298,930	642,470	592,030	1,824,670	645,460	1,759,720	2,184,790	9,954,470
Harvest	1,055	266,752	138,682	278,290	79,301	221,073	515,834	—	9,702	—	1,511,689
Fire Loss	—	1,190	49,670	617,540	62,580	2,420	9,230	1,510	27,910	66,030	838,080
Total Drain	1,055	267,942	188,352	896,830	141,881	223,493	525,064	1,510	37,612	66,030	2,349,749
Drain/Growth %	10	34	79	69	22	38	29	—	2	3	24
Forest Balance	9,615	509,228	50,208	402,100	500,609	368,537	1,299,606	643,950	1,722,108	2,098,760	7,604,721

TABLE 34
MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1984 — 1985

(Volume in cubic metres per year)

Species/Item	Aspen Parkland	Mountain	Pineland	L. Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
POPLAR											
Increment	396,780	895,680	384,790	1,075,230	580,870	275,660	489,420	28,140	577,630	612,010	5,316,210
Harvest	1,938	24,136	70,647	15,699	6,680	800	1,865	—	835	—	122,600
Fire Loss	—	11,480	43,190	185,470	185,320	3,830	830	—	4,010	9,170	443,300
Total Drain	1,938	35,616	113,837	201,169	192,000	4,630	2,695	—	4,845	9,170	565,900
Drain/Growth %	—	4	30	19	33	2	1	—	1	1	11
Forest Balance	394,842	860,064	270,953	874,061	388,870	271,030	486,725	28,140	572,785	602,840	4,750,310
OTHER HARDWOODS											
Increment	145,450	91,350	54,550	86,440	81,660	53,010	61,610	20,800	67,250	94,500	756,620
Harvest	337	10,185	14,654	7,616	2,227	883	2,059	—	781	—	38,742
Fire Loss	—	540	4,060	18,920	10,340	360	170	10	820	2,520	37,740
Total Drain	337	10,725	18,714	26,536	12,567	1,243	2,229	10	1,601	2,520	76,482
Drain/Growth %	—	12	34	31	15	2	4	—	2	3	10
Forest Balance	145,113	80,625	35,836	59,904	69,093	51,767	59,381	20,790	65,649	91,980	680,138
TOTAL HARDWOODS											
Increment	542,230	987,030	439,340	1,161,670	662,530	328,670	551,030	48,940	644,880	706,510	6,072,830
Harvest	2,275	34,321	85,301	23,315	8,907	1,683	3,924	—	1,616	—	161,342
Fire Loss	—	12,020	47,250	204,390	195,660	4,190	1,000	10	4,830	11,690	481,040
Total Drain	2,275	46,341	132,551	227,705	204,567	5,873	4,924	10	6,446	11,690	642,382
Drain/Growth %	—	5	30	20	31	2	1	—	1	2	11
Forest Balance	539,955	940,689	306,789	933,965	457,963	322,797	546,106	48,930	638,434	694,820	5,430,448
TOTAL ALL SPECIES											
Increment	552,900	1,764,200	677,900	2,460,600	1,305,000	920,700	2,375,700	694,400	2,404,600	2,871,300	16,027,300
Harvest	3,330	301,073	223,983	302,605	88,206	222,756	519,758	—	11,318	—	1,673,031
Fire Loss	—	13,210	96,920	821,930	258,220	6,610	10,230	1,520	32,740	77,720	1,319,100
Total Drain	3,330	314,283	320,903	1,124,535	346,426	229,366	529,988	1,520	44,058	77,720	2,992,131
Drain/Growth %	1	18	47	46	27	25	22	—	2	3	19
Forest Balance	549,570	1,449,917	356,997	1,336,065	958,572	691,334	1,845,712	692,880	2,360,542	2,793,580	13,035,169

TABLE 35
MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1985 — 1986

(Volume in cubic metres per year)

Species/Item	Aspen Parkland	Mountain	Pineland	L. Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
PINE											
Increment	960	356,970	118,040	752,560	320,990	284,420	629,710	227,170	482,520	1,141,760	4,315,100
Harvest	683	72,827	82,740	109,565	22,718	176,681	75,720	—	6,541	—	547,475
Fire Loss	—	—	110	9,400	1,160	—	20	8,000	2,420	34,090	55,200
Total Drain	683	72,827	82,850	118,965	23,878	176,681	75,74[illegible]	8,000	8,961	34,090	602,675
Drain/Growth %	71	20	70	16	8	62	12	4	2	3	14
Forest Balance	277	284,143	35,190	633,595	297,112	107,739	553,970	219,170	473,559	1,107,670	3,712,425
SPRUCE											
Increment	9,700	394,360	84,540	466,470	246,430	298,200	1,179,970	418,290	1,243,920	979,460	5,321,140
Harvest	39	190,492	53,483	276,239	49,337	256,070	109,744	—	2,429	—	937,833
Fire Loss	—	—	—	4,940	5,400	200	170	5,370	40,270	25,540	81,890
Total Drain	39	190,492	53,483	281,179	54,737	256,270	109,914	5,370	42,699	25,540	1,019,723
Drain/Growth %	—	48	63	60	22	86	9	1	4	3	19
Forest Balance	9,661	203,868	31,057	185,291	191,693	41,930	1,069,856	412,920	1,201,221	953,920	4,301,417
BALSAM FIR											
Increment	—	20,780	17,490	69,740	70,600	7,430	15,190	—	33,280	43,570	278,080
Harvest	—	253	1,524	943	179	—	—	—	150	—	3,049
Fire Loss	—	—	—	120	600	—	—	—	170	300	1,190
Total Drain	—	253	1,524	1,063	779	—	—	—	320	300	4,239
Drain/Growth %	—	1	9	2	1	—	—	—	1	1	2
Forest Balance	—	20,527	15,966	68,677	69,821	7,430	15,190	—	32,960	43,270	273,841
OTHER SOFTWOODS											
Increment	10	5,080	18,490	10,160	4,450	1,980	—	—	—	—	40,150
Harvest	5	32	3,048	1,618	3	—	—	—	—	—	4,706
Fire Loss	—	—	—	110	810	—	—	—	230	50	1,200
Total Drain	5	32	3,048	1,728	813	—	—	—	230	50	5,906
Drain/Growth %	50	1	17	17	18	—	—	—	—	—	14
Forest Balance	5	5,028	15,442	8,432	3,637	1,980	—	—	230	50	34,244
TOTAL SOFTWOODS											
Increment	10,670	777,170	238,560	1,298,930	642,470	592,030	1,824,670	645,460	1,759,720	2,164,790	9,954,470
Harvest	727	263,604	140,795	388,365	72,237	432,751	185,464	—	9,120	—	1,493,063
Fire Loss	—	—	110	14,570	7,970	200	190	13,370	43,090	59,980	139,480
Total Drain	727	263,604	140,905	402,935	80,207	432,951	185,654	13,370	52,210	59,980	1,632,543
Drain/Growth %	7	34	59	31	13	73	10	2	3	3	16
Forest Balance	9,943	513,566	97,655	895,995	562,263	159,079	1,639,016	632,090	1,707,510	2,104,810	8,321,927

TABLE 35
MANITOBA FOREST BALANCE
BY FOREST SECTION AND SPECIES WORKING GROUP
1985 — 1986

(Volume in cubic metres per year)

Species/Item	Aspen Parkland	Mountain	Pineland	L. Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
POPLAR											
Increment	396,780	895,680	384,790	1,075,230	580,870	275,680	469,420	28,140	577,630	612,010	5,316,210
Harvest	4,719	44,861	85,693	22,400	7,014	1,308	560	—	1,133	—	167,688
Fire Loss	—	190	90	3,240	4,260	130	10	160	2,420	4,840	15,340
Total Drain	4,719	45,051	85,783	25,640	11,274	1,438	570	160	3,553	4,840	183,028
Drain/Growth %	1	5	22	2	2	1	—	1	1	1	4
Forest Balance	392,061	850,629	299,007	1,049,590	569,596	274,222	488,850	27,980	574,077	607,170	5,133,182
OTHER HARDWOODS											
Increment	145,450	91,350	54,550	86,440	81,660	53,010	61,610	20,800	67,250	94,500	756,620
Harvest	315	9,651	8,773	5,077	1,646	1,456	624	—	604	—	28,146
Fire Loss	—	20	—	160	360	10	—	490	980	1,040	3,060
Total Drain	315	9,671	8,773	5,237	2,006	1,466	624	490	1,584	1,040	31,206
Drain/Growth %	—	11	16	6	3	3	1	—	2	1	4
Forest Balance	145,135	81,679	45,777	81,203	79,654	51,544	60,986	20,310	65,666	93,460	725,414
TOTAL HARDWOODS											
Increment	542,230	987,030	439,340	1,161,670	662,530	328,670	551,030	48,940	644,880	706,510	6,072,830
Harvest	5,034	54,512	94,466	27,477	8,660	2,764	1,184	—	1,737	—	195,834
Fire Loss	—	210	90	3,400	4,620	140	10	650	3,400	5,880	18,400
Total Drain	5,034	54,722	94,556	30,877	13,280	2,904	1,194	650	5,137	5,880	214,234
Drain/Growth %	1	6	22	3	2	1	—	1	1	1	4
Forest Balance	537,196	932,308	344,784	1,130,793	649,250	325,766	549,836	48,290	639,743	706,630	5,858,596
TOTAL ALL SPECIES											
Increment	552,900	1,764,200	677,900	2,460,600	1,305,000	920,700	2,375,700	694,400	2,404,600	2,871,300	16,027,300
Harvest	5,761	318,116	235,261	415,842	80,897	435,515	186,648	—	10,857	—	1,688,897
Fire Loss	—	210	200	17,970	12,590	340	200	14,020	46,490	65,860	157,880
Total Drain	5,761	318,326	235,461	433,812	93,487	435,855	186,848	14,020	57,347	65,860	1,846,777
Drain/Growth %	1	18	35	18	7	47	8	2	2	2	12
Forest Balance	547,139	1,445,874	442,439	2,026,788	1,211,513	484,845	2,188,852	680,380	2,342,253	2,805,440	14,180,523

TABLE 36
ANNUAL HARVEST
FIVE-YEAR AVERAGE

(Cubic Metres)

1986

Forest Section	Year	Pine	Spruce	Fir	Other Softwoods	Total Softwoods	Poplar	Other Hardwoods	Total Hardwoods	Total
Aspen Parkland	1981	853	1,301	—	—	2,154	2,827	1,361	4,188	6,342
	1982	507	579	—	—	1,086	4,022	1,597	5,619	6,705
	1983	104	696	—	3	703	3,781	555	4,336	5,039
	1984	943	112	—	—	1,055	1,938	337	2,275	3,330
	1985	683	39	—	5	727	4,719	315	5,034	5,761
Total 5 year		3,090	2,627	—	8	5,725	17,287	4,165	21,452	27,177
5-year average		618.0	525.4	—	1.6	1,145.0	3,457.4	833.0	4,290.4	5,435.4
Mountain	1981	86,393	227,311	691	13	314,408	21,350	8,884	30,234	344,642
	1982	89,827	180,569	—	262	270,658	36,080	8,956	45,036	315,694
	1983	73,347	219,689	523	52	293,611	38,670	9,303	47,973	341,584
	1984	76,538	190,138	13	63	266,752	24,136	10,185	34,321	301,073
	1985	72,827	190,492	253	32	263,604	44,861	9,651	54,512	318,116
Total 5 year		398,932	1,008,199	1,480	422	1,409,033	165,097	46,979	212,076	1,621,109
5-year average		79,786.4	201,639.8	296.0	84.4	281,806.6	33,019.4	9,395.8	42,415.2	324,221.8
Pineland	1981	82,285	50,401	377	1,945	135,008	65,753	14,976	80,729	215,737
	1982	84,770	74,972	552	981	161,275	61,277	19,165	80,442	241,717
	1983	103,630	66,781	3,632	3,816	177,859	79,267	11,281	90,548	268,407
	1984	73,484	57,701	2,960	4,537	138,682	70,647	14,654	85,301	223,983
	1985	82,740	53,483	1,524	3,048	140,795	85,693	8,773	94,466	235,261
Total 5 year		426,909	303,338	9,045	14,327	753,619	362,657	68,829	431,486	1,185,105
5-year average		85,381.8	66,667.6	1,809.0	2,865.4	150,723.8	72,531.4	13,765.8	86,297.2	237,021.0
Lake Winnipeg East	1981	72,861	230,502	3,383	1,134	307,880	16,043	9,067	25,110	332,990
	1982	57,501	221,345	1,248	1,384	281,478	25,683	11,739	37,422	318,900
	1983	57,126	177,577	1,716	2,016	238,435	21,906	8,180	30,086	268,521
	1984	69,092	208,542	1,026	630	279,290	15,699	7,616	23,315	302,605
	1985	109,565	276,239	943	1,618	388,365	22,400	5,077	27,477	415,842
Total 5 year		366,145	1,114,205	8,316	6,782	1,495,448	101,731	41,679	143,410	1,638,858
5-year average		73,229.0	222,841.0	1,663.2	1,356.4	299,089.6	20,346.2	8,335.8	28,682.0	327,771.6

ANNUAL HARVEST
FIVE-YEAR AVERAGE
(Cubic Metres)

1986

Forest Section	Year	Pine	Spruce	Fir	Other Softwoods	Total Softwoods	Poplar	Other Hardwoods	Total Hardwoods	Total
Intertake	1981	16.732	31.841	50	—	48.623	6.829	2.415	9.244	57.867
	1982	12.190	51.545	57	9	63.801	2.842	1.607	4.449	68.250
	1983	6.492	50.729	135	13	57.369	6.325	1.193	7.518	64.887
	1984	12.315	65.337	1.075	574	79.301	6.680	2.227	8.907	88.208
	1985	22.718	49.337	179	3	72.237	7.014	1.646	8.660	80.897
Total 5 year		70.447	248.789	1.496	599	321.331	29.690	9.088	38.778	360.109
5-year average		14.089 4	49.757 8	299 2	119 8	64.266 2	5.938 0	1.817 6	7.755 6	72.021 8
Saskatchewan River	1981	95.276	147.071	—	1	242.348	1.293	1.667	2.960	245.308
	1982	59.557	92.715	—	25	152.297	3.040	941	3.981	156.278
	1983	62.744	96.335	—	—	159.079	1.797	877	2.674	161.753
	1984	90.192	130.881	—	—	221.073	800	883	1.683	222.756
	1985	176.681	256.070	—	—	432.751	1.308	1.456	2.764	435.515
Total 5 year		484.450	723.072	—	26	1.207.548	8.238	5.824	14.062	1.221.610
5-year average		96.890 0	144.614 4	—	5 2	241.509 6	1.647 6	1.164 8	2.812 4	244.322 0
Highrock	1981	222.310	343.167	—	—	565.477	—	—	—	565.477
	1982	138.702	216.337	—	—	355.039	—	2.197	2.197	357.236
	1983	146.404	224.783	—	—	371.187	4.193	2.047	6.240	377.427
	1984	210.446	305.388	—	—	515.834	1.865	2.059	3.924	519.758
	1985	75.720	109.744	—	—	185.464	560	624	1.184	186.648
Total 5 year		793.582	1.199.419	—	—	1.993.001	6.618	6.927	13.545	2.006.546
5-year average		158.716 4	239.883 8	—	—	398.600 2	1.323 6	1.385 4	2.709 0	401.309 2
Churchill River	1981	—	—	—	—	—	—	—	—	—
	1982	—	—	—	—	—	—	—	—	—
	1983	—	—	—	—	—	—	—	—	—
	1984	—	—	—	—	—	—	—	—	—
	1985	—	—	—	—	—	—	—	—	—
Total 5 year		—	—	—	—	—	—	—	—	—
5-year average		—	—	—	—	—	—	—	—	—

ANNUAL HARVEST
FIVE-YEAR AVERAGE

(Cubic Metres)

1986

Forest Section	Year	Pine	Spruce	Fir	Other Softwoods	Total Softwoods	Poplar	Other Hardwoods	Total Hardwoods	Total
Nelson River	1981	3,496	7,164	—	—	10,660	2,190	865	3,055	13,715
	1982	6,559	4,661	—	—	11,220	1,197	895	2,092	13,312
	1983	4,673	4,189	—	—	8,862	2,810	1,042	3,852	12,714
	1984	5,832	3,870	—	—	9,702	835	781	1,616	11,318
	1985	6,541	2,429	150	—	9,102	1,133	604	1,737	10,857
Total 5 year		27,101	22,313	150	—	49,564	8,165	4,187	12,352	61,916
5-year average		5,420.2	4,462.6	30.0	—	9,912.8	1,633.0	837.4	2,470.4	12,383.2
Hayes River	1981	—	—	—	—	—	—	—	—	—
	1982	—	—	—	—	—	—	—	—	—
	1983	—	—	—	—	—	—	—	—	—
	1984	—	—	—	—	—	—	—	—	—
	1985	—	—	—	—	—	—	—	—	—
Total 5 year		—	—	—	—	—	—	—	—	—
5-year average		—	—	—	—	—	—	—	—	—
Manitoba	1981	580,206	1,038,758	4,501	3,093	1,626,558	116,285	39,235	155,520	1,782,078
	1982	449,613	842,723	1,857	2,661	1,296,854	134,141	47,097	181,238	1,478,092
	1983	454,520	840,679	6,006	5,900	1,307,105	158,769	34,458	193,227	1,500,332
	1984	538,842	961,969	5,074	5,804	1,511,689	122,600	38,742	161,342	1,673,031
	1985	547,475	937,833	3,049	4,706	1,493,063	167,688	28,146	195,834	1,688,897
Total 5 year		2,570,656	4,621,962	20,487	22,164	7,235,269	699,483	187,678	887,161	8,122,430
5-year average		514,131.2	924,392.4	4,097.4	4,432.8	1,447,053.8	139,896.6	37,535.6	177,432.2	1,624,486.0

TABLE 37
SUMMARY OF CONE COLLECTION
APRIL 1, 1981 TO MARCH 31, 1986

Species	1981-82 hL	kgs	1982-83 hL	kgs	1983-84 hL	kgs	1984-85 hL	kgs	1985-86 hL	kgs
Jack Pine	22 91	N/A	67 2	34 326	92 46	57 097	85 6	47 133	170 60	96 54
Scots Pine			15 6	14 317					2 80	N/A
Red Pine			306 1	285 647	1 50	1 205			1 60	0 800
Black Spruce	35 40	N/A	123 20	44 090	249 25	107 432	105 30	43 826	66 05	N/A
White Spruce	1 45	N/A	9 65	7 663	2 50	0 960	109 35	152 497	9 25	6 060
Balsam Fir			2 10	3 00					0 15	0 500
Cedar			0 20	0 228					250 45	N/A
Siberian Larch			2 8	7 292						
TOTAL	59 760	N/A	526 85	396 563	345 710	166 694	300 25	243 456		

Note Seed extraction incomplete for 1985/86 at time of writing

TABLE 38
SEED INVENTORY
AS OF APRIL 1 OF THE REPORTING YEAR

Species	1981	1982	1983	1984	1985	1986
Jack Pine	440 644	400 577	395 969	355 533	304 593	N/A
Scots Pine	30 845	21 682	31 078	18 151	3 622	N/A
Red Pine	39 747	27 733	299 391	275 620	189 442	N/A
Black Spruce	29 470	27 103	55 411	139 742	155 365	N/A
White Spruce	277 603	252 840	219 244	158 761	184 839	N/A
Balsam Fir			0 750	0 750	2 860	N/A
Cedar		0 814			0 940	N/A
Siberian Larch	9 582	4 135	10 467	7 575	0 283	N/A

Note: Seed inventory not finalized for 1985/86 at time of writing

TABLE 39
SHIPPING SCHEDULE

Species	1981	1982	1983	1984	1985	1986	1987	1988	1989
Jack Pine	1,138,300	1,799,480	1,315,950	1,570,490	1,689,355	2,000,000	2,610,000	3,100,000	
Red Pine	1,006,025	911,570	1,146,461	592,225	678,655	374,000	650,000	700,000	670,000
Scots Pine	232,500	177,960	213,255	287,975	141,175	99,000	180,000	200,000	
White Spruce	1,055,350	1,153,330	942,500	163,666	1,616,575	270,000	2,200,000	2,188,000	1,594,000
Black Spruce	Nil	Nil	Nil	49,770	372,800	120,000	592,000	344,000	
Siberian Larch	86,145	28,750	11,400	27,775	7,750	220,000	14,000	30,000	
TOTAL	3,518,320	4,071,090	3,629,566	2,691,901	4,506,310	3,083,000	6,246,000	6,562,000	2,264,000

	White Spruce	Jack Pine	Red Pine	Scots Pine	Siberian Larch	TOTAL
1985	31,650	4,800	29,000	95,975	6,775	168,200
1984	3,150	5,450	33,300	78,025	3,275	123,200
1983	800	4,250	20,875	58,750	11,025	95,700
1982	36,480	4,830	27,170	69,360	10,060	147,900
1981	62,950	5,250	16,725	71,925	10,550	167,400

The above figures represent the number and species of trees shipped on private orders from 1981 to 1985

TABLE 40
TREES PLANTED BY HAND

	1981	1982	1983	1984	1985
Southeastern Region	1,307,000 (547)*	1,931,000 (629)	1,442,475 (523)	1,226,225 (451)	1,321,805 (511)
Eastern Region	705,700 (127)	445,800 (246)	433,000 (178)	515,000 (199)	1,235,600 (525)
Interlake Region	—	90,535 (26)	658,750 (301)	235,000 (87)	325,840 (90)
Western/Northwestern	552,000 (315)	894,350 (521)	602,000 (287)	103,182 (73)	1,177,350 (500)
Northwestern/Northeastern	290,750 (148)	250,404 (157)	215,349 (90)	98,700 (59)	474,110 (313)
Abitibi-Price Inc.	512,684 (576)	988,000 (400)	971,079 (306)	1,719,000 (636)	2,444,000 (1021)
Manfor Ltd.	—	—	—	383,794 (152)	1,990,581 (1018)
TOTAL	3,361,134 (1712)	4,600,189 (1979)	4,322,653 (1685)	4,045,901 (1666)	8,969,286 (3978)

* Hectares planted in brackets.

TABLE 41
TREES PLANTED
MECHANICAL

	1981	1982	1983	1984	1985
Southeastern Region	388,625 (139)*	166,050 (99)	261,425 (135)	229,250 (151)	455,125 (191)

*Hectares planted in brackets

TABLE 42
SITE PREPARATION
MECHANICAL

(Hectares)

	1981	1982	1983	1984	1985
Southeastern Region	595	555	513	830	903
Eastern Region	193	180	98	481	597
Interlake Region	Nil	36	Nil	93	449
Western Region	430	320	92	494	680
Northern Region	45	Nil	130	221	337
Abitibi-Price Inc.	509	333	316	273	269
Manfor Ltd.	Nil	Nil	Nil	681	1734
TOTAL	1832	1424	1149	3073	4969

TABLE 43
SCARIFICATION FOR NATURAL REGENERATION

(Hectares)

	1981	1982	1983	1984	1985
Southeastern Region	Nil	34	94	96	120
Eastern Region	Nil	Nil	Nil	Nil	Nil
Interlake Region	Nil	200	37	51	56
Western Region	644	235	926	167	Nil
Northern Region	2655	2869	2132	481	347
Abitibi-Price Inc	230	247	Nil	104	Nil
Manfor Ltd	N/A	N/A	N/A	867	1182
TOTAL	3729	3585	3189	1766	1705

TABLE 44
SEEDED HECTARES*
BY HAND AND MECHANICAL

	1981	1982	1983	1984	1985
Southeastern Region	3	9	51	Nil	Nil
Eastern Region	Nil	76	Nil	Nil	Nil
Interlake Region	Nil	Nil	Nil	Nil	Nil
Western Region	272	12	3	Nil	Nil
Northern Region	Nil	Nil	Nil	20	Nil
Abitibi-Price Inc.	10	24	643	101	1
Manfor Ltd.	N/A	N/A	N/A	24	Nil
TOTAL	285	121	697	145	1

*This includes both hand and mechanical seeding

TABLE 45

FIVE-YEAR PEST SURVEY RESULTS
1981 — 1986

(Area in Hectares)

Forest Pest	+ 1981/82		1982/83		1983/84		1984/85		1985/86		Total	
	Survey	Treat	Survey	Treat	Survey	Treat	Survey	Treat	Survey	Treat	Survey	Treat
Spruce Budworm	400	360	31,380		40,500		142,700		77,500		292,480	360
Jack Pine Budworm	Detected		46,000		153,000		761,000		2,047,500		3,007,500	
Forest Tent Caterpillar	100,000		600,000		600,000		76,900		19,500		1,396,400	
Armillaria	Detected		Detected		1.5		324.1		34.9		360.5	
Dwarf Mistletoe	32.4	301.4	45,421		113,325		428	428	*192 km	1,067	159,398	1,796
White Pine Weevil			Detected		Detected	10	1,212		212		1,424	10
Red Pine Needle Droop					83.7		83.7				167.4	
Pinewood Nematode			Detected		Detected		Detected		Detected			
Wood Borers	123,247										123,247	

+ Survey totals per year may include ground and/or aerial surveys.
* Ground survey lines - survey lines run through infected stands and at each infected pocket transect lines and prism plots are established in the mortality center.

TABLE 46
FIRES ACTIONED
1981 — 1985

Regions	Fires Actioned by Regions 1981 — 1985						Seasonal Staff 1985		
	85	84	83	82	81	5 yr. avg.	FR	FT	HT
Northeast	159	212	125	133	272	182	23	53	24
Eastern	58	205	258	96	116	147	21	15	22
Northwest	21	64	22	85	86	56	15	15	24
Whiteshell	49	64	57	22	42	47	19	5	
Interlake	37	65	37	40	35	43	12	24	
Western	5	51	18	41	86	40	20	15	
Southeast	12	25	17	4	18	15	13	10	
Southwest	3	6	1	4	7	4	1.5		
PROVINCE	344	692	535	425	662	532	148.5	137	70

TABLE 47

YEAR	NUMBER OF FIRES	DIRECT COSTS	LOSS (ha.)
1981/82	662	$7,327,718	376,220.6
1982/83	425	2,725,252	15,444.9
1983/84	535	8,259,084	99,152.8
1984/85	692	7,435,887	130,189.2
1985/86	344	1,533,034	11,132.3
5-Year Average	532	5,456,195	126,428.0

HELITAC PROGRAM

YEAR	FIRES ACTIONED	AVERAGE SIZE (ha.)	PROVINCIAL AVERAGE (ha.)
1981/82	40	4.8	568.3
1982/83	59	4.7	36.3
1983/84	99	3.3	185.3
1984/85	98	4.0	188.1
4-Year Average	74	4.2	244.5

FIRETAC PROGRAM

YEAR	FIRES ACTIONED	AVERAGE SIZE (ha.)	PROVINCIAL AVERAGE SIZE (ha.)
1981/82	97	23.7	568.3
1982/83	79	76.7	36.3
1983/84	130	8.7	185.3
1984/85	275	27.5	188.1
4-Year Average	145	34.2	244.5

	FIRES ACTIONED	TOTAL FIRE SIZE	AVERAGE
Helitac	98	390.04 ha.	3.98 ha.
Firetac	275	7,566.33 ha.	27.51 ha.
E.F.F.	319	122,232.83 ha.	383.17 ha.
Provincial Total	692	130,189.20 ha.	188.13 ha.

TABLE 48
LUMBER PRODUCTION

CU. METRES
(Thousands)

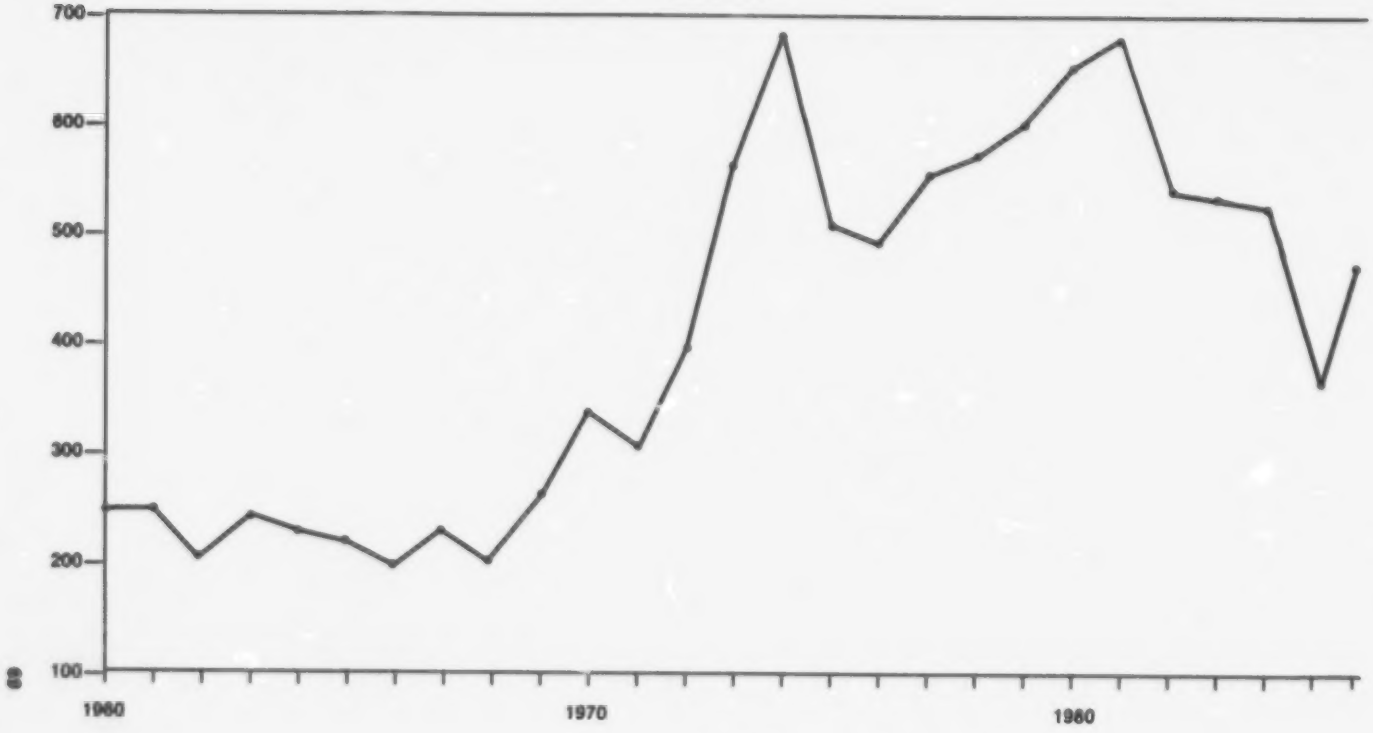


TABLE 49
PULPWOOD PRODUCTION

CU. METRES
(Millions)

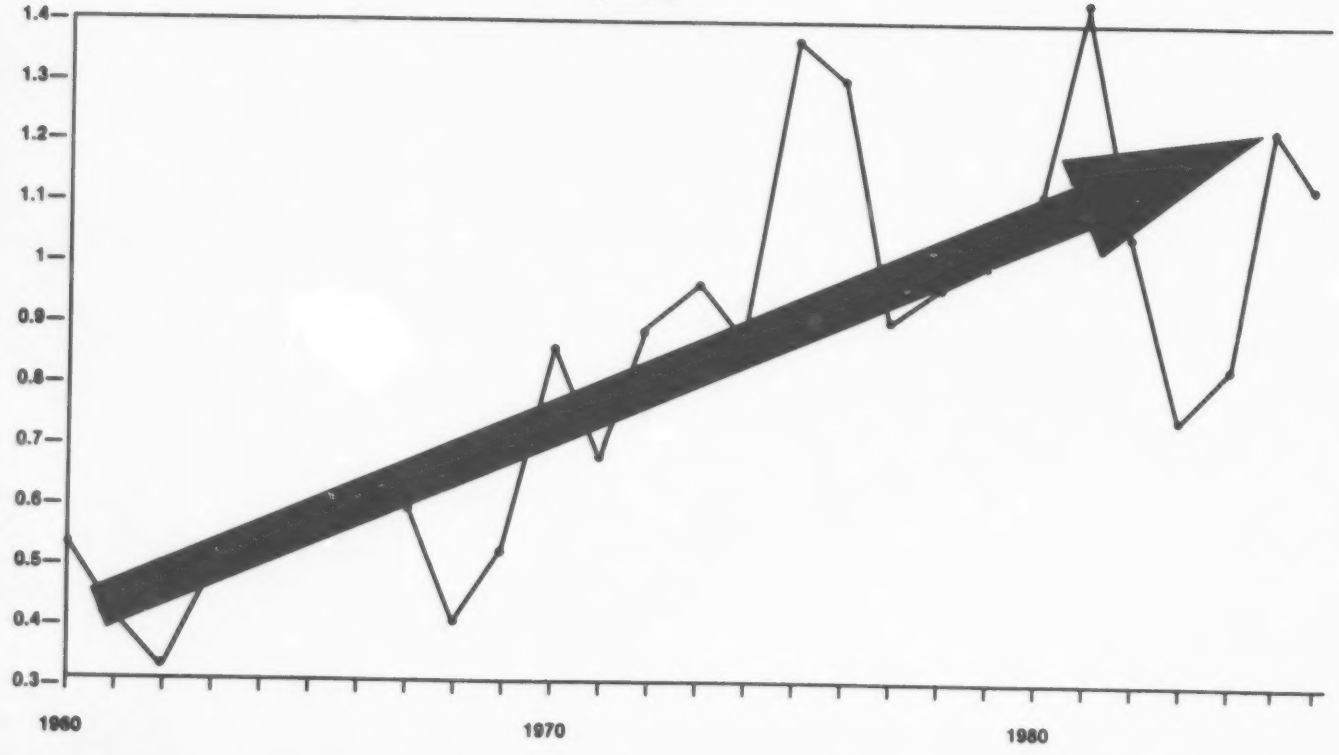
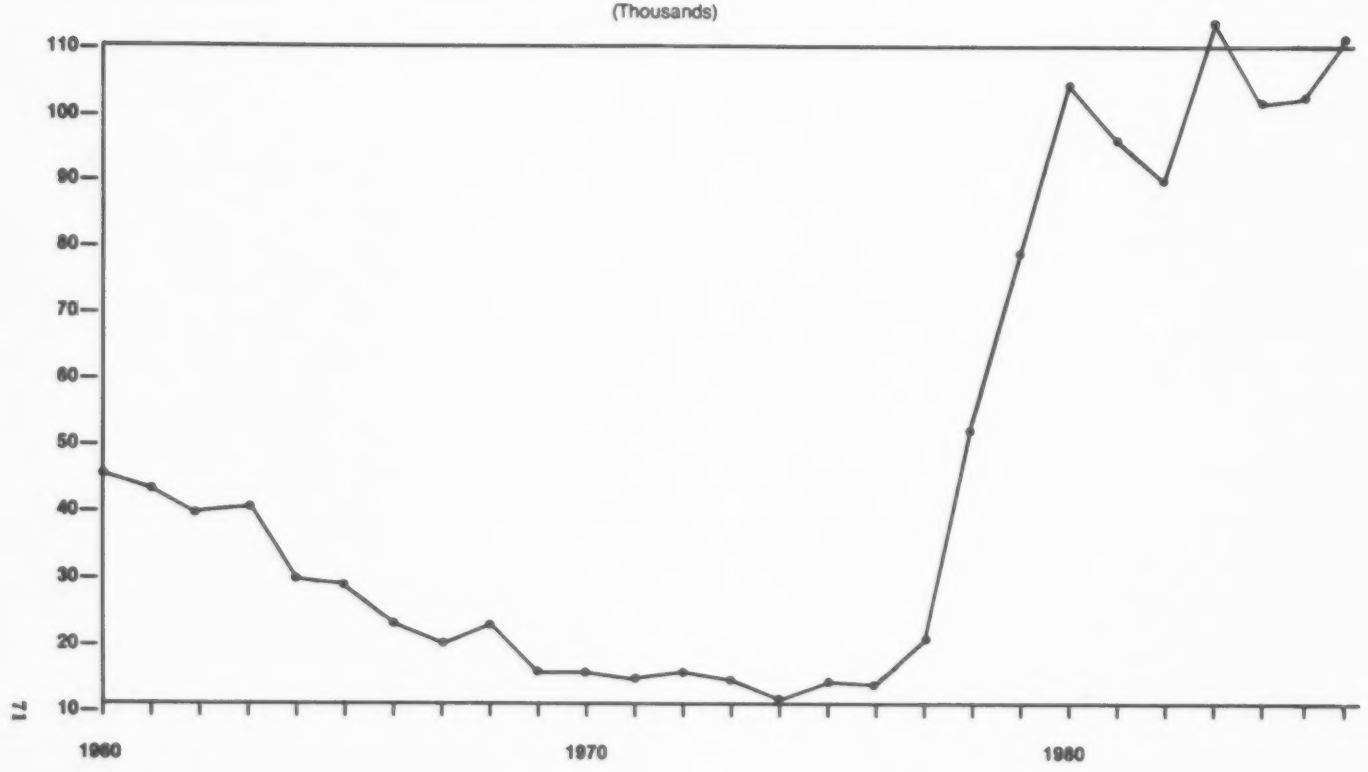
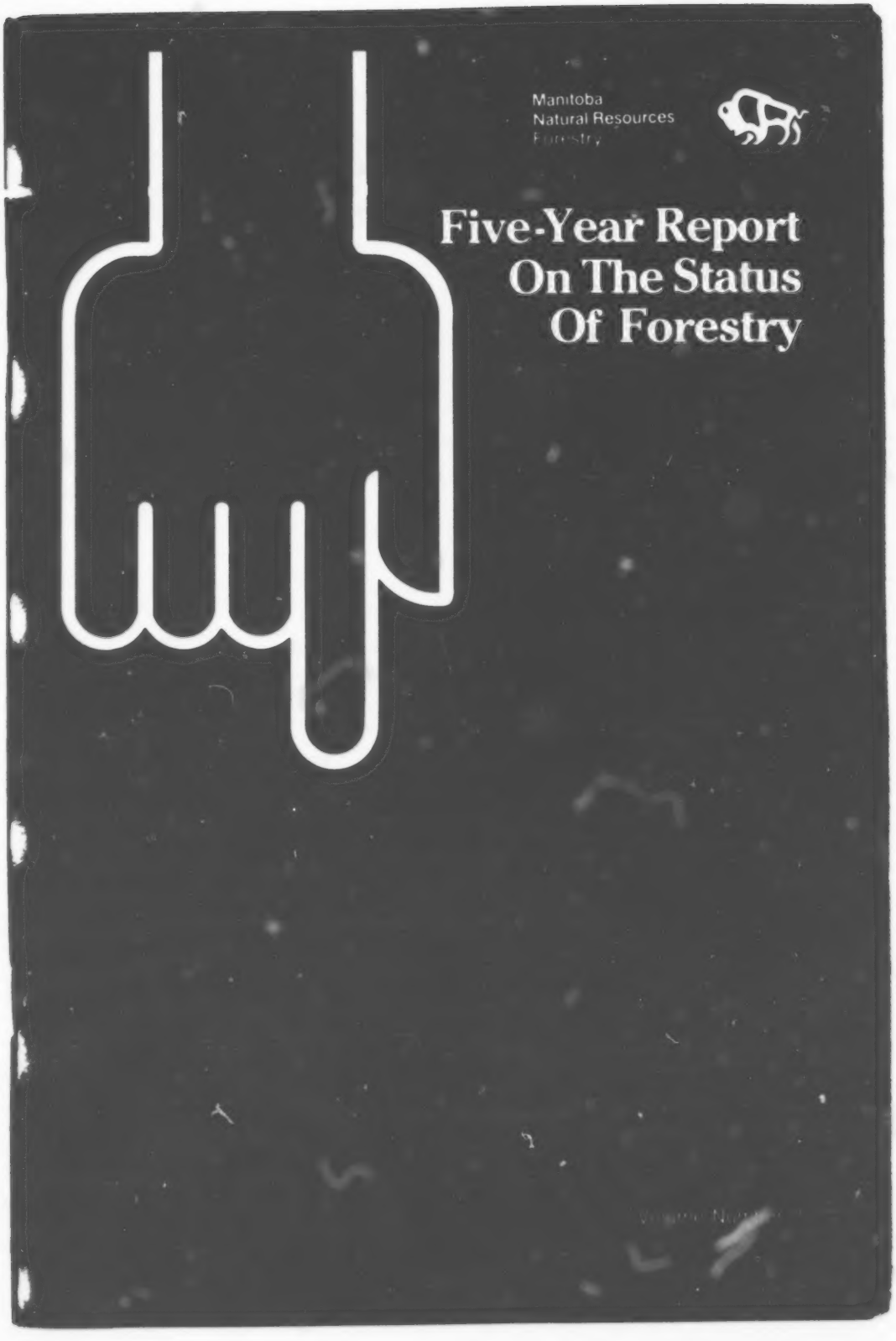


TABLE 50
FUELWOOD PRODUCTION

CU. METRES
(Thousands)




Manitoba
Natural Resources
Forestry
Five-Year Report
On The Status
Of Forestry

Manitoba
Natural Resources
Forestry

FIVE-YEAR REPORT ON THE STATUS OF FORESTRY VOLUME 2 (Tables, Charts and Graphs)

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TABLE 1
PROVINCIAL FOREST AREA SUMMARY

(HECTARES)

Ownership	PRODUCTIVE FOREST LAND					Forested Non-Productive	Non-Forested	Total Land	Water	Total
	Mature	Intermediate	Young	Potential	Total					
Provincial — Closed	67,747	145,040	106,119	11,236	332,142	158,688	32,645	523,475	69,676	593,151
Provincial — Open										
Prov. Forest, Forest & Park	1,139,978	2,531,865	2,363,230	725,386	6,760,459	5,317,802	1,628,084	13,706,345	2,487,348	16,193,693
Forest Management Licence	95,798	230,896	89,049	68,075	483,818	131,167	43,256	658,241	20,737	678,978
Integrated Wood Supply	158,607	357,879	247,946	101,582	866,014	672,056	226,091	1,764,161	74,142	1,838,303
ManFor	666,698	1,811,200	1,619,259	625,997	4,723,144	3,596,234	477,505	8,796,883	1,713,868	10,510,751
International Nickel	10,472	25,878	15,644	13,534	65,528	17,270	6,815	89,613	14,595	104,208
Community Pasture	7,601	24,376	21,716	1,209	54,902	9,660	106,529	171,091	1,597	172,688
Sub-total — Open	2,079,144	4,982,094	4,356,844	1,535,783	12,953,865	9,744,189	2,488,280	25,186,334	4,312,287	29,498,621
Provincial — Restricted	56,117	85,620	40,593	13,781	196,111	49,166	46,888	292,165	10,080	302,245
Sub-total — Provincial	2,203,008	5,212,754	4,505,556	1,560,800	13,482,118	9,952,043	2,567,813	26,001,974	4,392,043	30,394,017
Federal	171,833	48,677	10,227	15,764	246,501	17,038	46,521	310,060	12,802	322,862
Municipal	33	314	177	—	524	76	799	1,399	—	1,399
Private	308,977	462,805	199,434	19,303	988,519	176,321	6,441,998	7,608,838	23,341	7,632,179
Local Government District	20,586	35,232	33,197	10,129	99,144	19,453	49,152	167,749	333	168,082
Indian Reserve	23,114	34,486	27,490	9,504	94,594	28,810	90,135	213,599	4,212	217,751
Total Forest Zone	2,725,551	5,794,268	4,776,081	1,615,500	14,911,400	10,195,741	9,196,418	34,303,559	4,432,731	38,736,290
Tundra/Transition Zone	—	—	—	—	—	8,336,565	11,744,921	20,081,486	2,601,784	22,683,270
Tidal Flats	—	—	—	—	—	—	187,813	187,813	—	187,813
Major Lakes	—	—	—	—	—	—	—	—	3,401,386	3,401,386
Manitoba	2,725,551	5,794,268	4,776,081	1,615,500	14,911,400	18,532,306	21,129,152	54,572,858	10,435,901	65,008,759

TABLE 2
FOREST ZONE
AREA SUMMARY BY FOREST SECTION
ALL STATUS AND OWNERSHIPS

(HECTARES)

Forest Section	PRODUCTIVE FOREST LAND									
	Mature	Intermediate	Young	Potential	Productive Total	Forested Non-Productive	Non-Forested	Total Land	Water	Total Land
Aspen Parkland	241,164	335,690	150,605	7,798	735,257	143,766	5,480,172	6,359,195	105,733	6,464,928
Mountain	613,876	463,490	276,184	138,459	1,492,009	472,778	1,293,367	3,258,154	233,564	3,491,718
Pineland	135,790	243,228	137,378	65,284	581,680	282,906	237,611	1,102,197	45,019	1,147,216
Lake Winnipeg East	331,261	890,180	537,530	173,969	1,932,940	1,242,495	232,478	3,407,913	284,307	3,692,220
Interlake	300,293	577,539	411,139	101,476	1,390,447	678,302	980,863	3,049,612	251,164	3,300,776
Saskatchewan River	214,502	354,508	187,687	57,138	813,835	814,972	373,264	2,002,071	638,007	2,640,078
Highrock	258,645	811,474	633,618	202,106	1,905,843	1,185,627	82,379	3,173,849	496,353	3,670,202
Churchill River	54,317	493,280	996,096	124,303	1,667,996	754,304	76,557	2,498,857	599,400	3,098,257
Nelson River	270,576	712,399	682,633	287,732	1,953,340	1,725,042	216,712	3,895,094	605,063	4,500,157
Hayes River	305,127	912,480	763,211	457,235	2,438,053	2,895,549	223,015	5,556,617	1,174,121	6,730,738
TOTAL	2,725,551	5,794,268	4,776,081	1,615,500	14,911,400	10,195,741	9,196,418	34,303,559	4,432,731	39,736,290

TABLE 3
FOREST ZONE
AREA SUMMARY BY FOREST SECTION
PROVINCIAL CROWN — OPEN [1]

(HECTARES)

Forest Section	PRODUCTIVE FOREST LAND									
	Mature	Intermediate	Young	Potential	Productive Total	Forested Non-Productive	Non-Forested	Total Land	Water	Total Area
Aspen Parkland	29,224	45,089	28,763	2,418	105,495	19,965	354,642	480,102	80,906	561,008
Mountain	355,516	292,045	197,036	112,403	957,000	409,645	306,766	1,673,411	211,992	1,885,403
Pineland	116,109	203,761	106,479	51,791	478,140	251,306	117,478	846,924	44,135	891,059
Lake Winnipeg East	265,046	719,378	417,432	152,638	1,554,494	1,073,171	190,423	2,818,088	235,811	3,053,899
Interlake	234,403	471,434	343,795	93,763	1,143,395	647,006	486,337	2,276,738	248,837	2,525,575
Saskatchewan River	207,476	346,643	183,889	56,954	794,962	803,746	341,283	1,939,991	637,256	2,577,247
Highrock	243,647	779,421	626,755	200,240	1,850,063	1,170,145	77,445	3,097,653	485,318	3,582,971
Churchill River	54,202	493,193	995,811	124,297	1,667,503	754,250	75,698	2,497,451	599,387	3,096,838
Nelson River	262,346	698,118	675,343	285,373	1,921,180	1,713,410	209,580	3,844,170	593,099	4,437,269
Hayes River	303,572	908,637	759,826	454,695	2,426,730	2,891,884	222,101	5,540,715	1,173,949	6,714,664
TOTAL	2,071,542	4,957,719	4,335,129	1,534,572	12,898,962	9,734,928	2,381,753	25,015,243	4,310,690	29,325,933

[1] excludes community pasture

TABLE 4
MERCHANTABLE VOLUME SUMMARY

(In Cubic Metres)

March 1986

		SOFTWOOD							HARDWOOD					
Ownership	Status	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total
Prov. Crown Closed	Prov. Forest Forest & Park	5,753,160	4,670,680	1,377,840	633,950	184,620	1,350	12,621,580	5,927,880	443,430	606,060	160,440	7,137,810	19,759,390
Prov. Crown Open	Prov. Forest Forest & Park	75,744,820	95,601,250	19,020,360	4,927,120	5,167,490	640,830	201,101,870	82,511,090	15,249,870	10,250,630	2,731,620	110,743,210	311,845,080
	Forest Mgmt Licence	10,153,920	6,469,200	1,397,460	884,490	1,834,700	—	20,739,770	8,347,910	467,410	876,740	102,960	9,795,020	30,534,790
	Integrated Wood Supply Area	9,432,910	13,436,520	2,424,810	2,109,620	1,246,510	6,320	28,656,690	11,833,170	1,121,450	1,399,910	31,430	14,385,960	43,042,650
	Manitoba Forest Resources	54,077,850	100,513,600	14,520,650	1,237,350	968,880	1,750	171,320,080	36,376,470	4,236,580	5,549,810	148,040	46,311,000	217,631,080
	International Nickle Co	636,160	1,612,950	183,060	16,530	6,280	—	2,454,980	717,440	76,480	84,560	—	878,480	3,333,460
	Community Pasture	6,270	36,380	44,180	1,900	4,650	—	93,380	1,430,830	197,540	31,750	226,520	1,886,640	1,980,020
	All	150,051,930	217,869,900	37,590,520	9,177,010	9,228,510	648,900	424,366,770	141,216,910	21,349,430	18,193,400	3,240,570	184,000,310	608,367,080
Prov. Crown Restricted	Prov. Forest Forest & Park	3,111,290	2,862,490	1,725,950	457,790	195,550	3,490	8,356,560	5,549,880	615,490	579,220	155,400	6,899,990	15,256,550
Total Prov. Crown	All	158,916,380	225,203,050	40,694,310	10,268,750	9,608,680	653,740	445,344,910	152,694,670	22,408,350	19,378,680	3,556,410	198,038,110	643,383,020
Federal Crown	All	657,260	2,302,530	6,604,840	731,380	164,180	2,040	10,662,230	18,819,950	5,063,950	1,584,840	226,220	25,694,960	36,357,190
Municipal	All	190	30	670	60	10	—	960	20,490	4,930	700	1,290	27,410	28,370
Private	All	706,430	1,174,250	1,736,370	193,990	205,330	29,400	4,045,770	33,032,140	5,521,420	1,107,880	13,029,530	52,690,970	56,736,740
Local Govt District	All	139,310	121,700	160,810	27,380	32,640	6,670	488,510	2,562,950	427,600	113,020	155,960	3,259,530	3,748,040
Indian Reserve	All	342,510	1,339,480	438,180	162,990	65,000	16,120	2,364,280	2,192,800	330,750	235,280	248,270	3,007,100	5,371,380
Total Forest Zone	All	160,962,080	230,141,040	49,635,180	11,384,550	10,075,840	707,970	462,906,660	209,323,000	33,757,000	22,420,400	17,217,680	282,718,080	745,624,740

TABLE 5
FOREST ZONE
MERCHANTABLE VOLUME BY FOREST SECTION

(IN CUBIC METRES)

Forest Section	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Total Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Total Hardwood	Total	Percent
Aspen Parkland	125,820	233,530	832,750	7,310	207,650	300	1,407,360	23,941,360	2,822,420	456,570	13,811,430	41,081,780	42,439,140	5.7
Mountain	7,422,860	19,652,660	19,290,320	2,141,050	1,579,620	2,300	50,088,810	63,749,770	17,243,450	5,385,100	1,984,450	88,362,770	138,451,580	18.6
Pineland	4,152,500	7,711,670	664,960	727,930	2,560,430	676,340	16,513,830	10,279,110	2,350,790	1,168,390	416,380	14,214,670	30,728,500	4.1
Lake Winnipeg East	38,949,920	25,941,090	4,205,260	2,665,450	3,037,120	12,160	74,811,000	27,814,230	1,197,940	2,641,440	206,590	31,860,200	106,671,200	14.3
Interlake	10,124,040	12,582,620	4,176,630	2,646,000	1,467,620	16,840	31,193,950	28,056,310	3,144,890	2,392,960	434,510	34,028,670	65,222,620	8.7
Saskatchewan River	15,095,360	15,426,090	4,693,570	311,580	615,040	30	36,141,670	7,303,360	1,895,860	1,161,710	364,320	10,725,250	46,866,920	6.3
Highrock	22,808,940	48,694,960	7,419,400	435,230	193,640	—	79,352,170	18,259,360	1,550,590	2,812,140	—	22,622,090	101,974,260	13.7
Churchill River	5,613,880	9,269,390	71,870	420	24,050	—	14,979,620	409,220	35,380	707,920	—	1,152,520	16,132,140	2.1
Nelson River	15,677,980	43,676,920	5,673,200	767,050	222,850	—	66,438,000	15,137,050	1,745,770	2,107,630	—	18,990,450	85,428,450	11.5
Hayes River	40,980,770	46,972,110	2,407,020	1,462,530	147,820	—	91,960,250	14,373,230	1,769,910	3,586,540	—	19,729,680	111,709,930	15.0
TOTAL	160,982,080	230,141,040	49,635,180	11,384,550	10,075,840	707,970	462,906,660	209,323,000	33,757,000	22,420,400	17,217,680	282,718,080	745,624,740	100.0%
Percent	21.6	30.9	6.7	1.5	1.3	0.1	62.1	28.1	4.5	3.0	2.3	37.9	100.0%	

TABLE 6
OTHER HARDWOODS MERCHANTABLE VOLUME
ALL OWNERSHIPS

(IN CUBIC METRES)

Forest Section	Bur Oak	Ash	White Elm	Manitoba Maple	Basswood	Cottonwood	Willow	Large Tooth Aspen	Total Other Hardwood
Aspen Parkland	6,071,980	3,235,450	2,124,120	1,758,110	214,330	302,890	104,550	—	13,811,430
Mountain	183,380	300,380	505,160	962,350	1,280	18,810	13,090	—	1,984,450
Pineland	24,170	248,270	140,450	3,490	—	—	—	—	416,380
Lake Winnipeg East	4,930	183,300	7,280	430	—	—	—	10,650	206,590
Interlake	117,100	128,170	52,890	134,840	1,030	480	—	—	434,510
Saskatchewan River	—	17,200	88,370	258,750	—	—	—	—	364,320
Highrock	—	—	—	—	—	—	—	—	—
Churchill River	—	—	—	—	—	—	—	—	—
Nelson River	—	—	—	—	—	—	—	—	—
Hayes River	—	—	—	—	—	—	—	—	—
TOTAL FOREST ZONE	6,401,560	4,112,770	2,918,270	3,117,970	216,640	322,180	117,640	10,650	17,217,680

TABLE 7
MERCHANTABLE VOLUME BY SPECIES AND DIAMETER CLASS ALL OWNERSHIPS

(IN CUBIC METRES)

	DIAMETER CLASS							
	10cm	12cm	14-18cm	20-24cm	26cm +	Total	% of Group	% of Total
Softwoods								
Jack Pine	11,072	17,276	70,665	42,703	19,246	160,962	35	22
Black Spruce	33,506	39,652	106,641	38,863	11,479	230,141	50	31
White Spruce	1,509	1,925	9,134	10,991	26,076	49,635	11	7
Balsam Fir	1,319	1,305	4,176	2,669	1,916	11,385	2	1
Tamarack Larch	1,109	1,424	4,699	2,093	751	10,076	2	1
Eastern Cedar	63	63	241	151	190	708	—	—
Total Softwoods	48,578	61,645	195,556	97,470	59,658	462,907	100	62
%	11	13	42	21	13	100		
Hardwoods								
Trembling Aspen	10,151	14,544	65,419	60,493	58,716	209,323	74	28
Balsam Poplar	968	1,511	7,833	8,755	14,690	33,757	12	5
White Birch	2,105	2,647	8,752	5,111	3,805	22,420	8	3
Other Hardwoods	546	801	3,698	3,960	8,213	17,218	6	2
Total Hardwoods	13,770	19,503	85,702	78,319	85,424	282,718	100	38
%	5	7	30	28	30	100		
Total All Species	62,348	81,148	281,258	175,789	145,082	745,625	—	100
% of total	8	11	38	24	19	100		

TABLE 8
PRIVATE FOREST LAND AREA AND VOLUME SUMMARY

Forest Section	Productive Forest Area (thousands of hectares)	%	Standing Merchantable Volume (thousands of cubic metres) Softwood	Hardwood	Total	%
Aspen Parkland	544	55.0	783	32,273	33,056	58.2
Mountain	197	19.9	1,001	11,179	12,180	21.5
Pineland	72	7.3	830	2,523	3,353	5.9
Lake Winnipeg East	7	0.7	178	378	556	1.0
Interlake	157	15.9	787	5,942	6,729	11.9
Saskatchewan River	5	0.5	229	295	524	0.9
Highrock	—	—	4	4	8	—
Churchill River	—	—	6	1	7	—
Nelson River	7	0.7	228	96	324	0.6
Hayes River	—	—	—	—	—	—
TOTAL PRIVATE	989	100.0	4,046	52,691	56,737	100.0

TABLE 9
PRESENT WOOD SURPLUSES BY FOREST SECTION ON PROVINCIAL CROWN LAND — OPEN

(VOLUME IN CUBIC METRES PER YEAR)

Forest Section	SOFTWOODS				HARDWOODS				TOTAL			
	Annual Allowable Cut (AAC)	Current Cut[1]	Indicated Surplus	Surplus as a % of AAC	Annual Allowable Cut (AAC)	Current Cut[1]	Indicated Surplus	Surplus as a % of AAC	Annual Allowable Cut (AAC)	Current Cut[1]	Indicated Surplus	Surplus as a % of AAC
Aspen Parkland	2,990	1,145.0	1,845.0	62	64,750	4,290.4	60,459.6	93	67,740	5,435.4	62,304.6	92
Mountain	402,180	281,806.6	120,373.4	30	578,290	42,415.2	535,874.8	93	980,470	324,221.8	656,248.2	67
Pineland	179,430	150,723.8	28,706.2	16	173,340	86,297.2	87,042.8	50	352,770	237,021.0	115,749.0	33
Lake Winnipeg East	787,960	299,089.6	488,870.4	62	268,520	28,682.0	239,838.0	89	1,056,480	327,771.6	728,708.4	69
Interlake	450,040	64,266.2	385,773.8	86	343,050	7,755.6	335,294.4	98	793,090	72,021.8	721,068.2	91
Saskatchewan River	484,410	241,509.6	242,900.4	50	118,890	2,812.4	116,077.6	98	603,300	244,322.0	358,978.0	60
Highrock	967,930	398,600.2	569,329.8	59	250,080	2,709.0	247,371.0	99	1,218,010	401,309.2	816,700.8	67
Churchill River	81,790	—	81,790.0	100	7,040	—	7,040.0	100	88,830	—	88,830.0	100
Nelson River	952,440	9,912.8	942,527.2	99	247,610	2,470.4	245,139.6	99	1,200,050	12,383.2	1,187,666.8	99
Hayes River	1,608,410	—	1,608,410.0	100	351,810	—	351,810.0	100	1,960,220	—	1,960,220.0	100
TOTAL	5,917,580	1,447,053.8	4,470,526.2	76	2,403,380	177,432.2	2,225,947.8	93	8,320,960	1,624,486.0	6,696,474.0	80

[1] Current cut is average over 5 year period 1981 to 1985

TABLE 10
INDICATED PRESENT WOOD SURPLUS BY SPECIES WORKING GROUP PROVINCIAL CROWN LAND — OPEN

(VOLUMES IN CUBIC METRES PER YEAR)[1]

Species Working Group	Annual Allowable Cut (AAC)	Cut	Indicated Surplus	Surplus as a % of AAC
Jack Pine	2,461,400	514,131.2	1,947,268.8	79
Spruce	3,293,370	924,392.4	2,368,977.6	72
Balsam Fir	129,690	4,097.4	125,592.6	97
Other Softwoods	33,120	4,432.8	28,687.2	87
Sub-total Softwoods	5,917,580	1,447,053.8	4,470,526.2	76
Trembling Aspen and Balsam Poplar	2,133,810	139,896.6	1,993,913.4	94
Other Hardwoods	269,570	37,535.6	232,034.4	86
Sub-total Hardwoods	2,403,380	177,433.2	2,225,947.8	93
TOTAL	8,320,960	1,624,486.0	6,696,474.0	80

[1] Current Cut is average over 5 year period 1981 to 1985

TABLE 11
TEN-YEAR AVERAGE WILDFIRE LOSS
1976-1985 INCLUSIVE
BY FOREST SECTIONS AND PRODUCTIVITY CLASS
FOR ALL LAND OWNERSHIPS AS REPORTED

(AREA IN HECTARES)

	FOREST SECTIONS										
Productivity Class	Aspen Parkland	Mountain	Pineland	Lake Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
Productive Forest —											
Mature	56	2,889	242	3,904	423	717	2,659	275	671	2,010	13,846
Intermediate	187	2,413	593	10,945	5,035	1,912	7,279	3,219	2,176	5,691	39,450
Young	574	1,225	987	7,563	5,346	1,202	5,018	5,793	4,000	4,184	35,892
Total Productive	817	6,527	1,822	22,412	10,804	3,831	14,956	9,287	6,847	11,885	89,188
Forested Non-Productive	444	2,664	965	7,887	1,844	1,658	6,333	4,792	5,148	8,744	40,479
Non-Forested	4,223	8,044	2,804	1,555	8,273	743	606	484	645	595	27,973
TOTAL LAND AREA	5,484	17,235	5,591	31,854	20,921	6,232	21,895	14,563	12,640	21,224	157,640

TABLE 12
LAST FIVE-YEAR AVERAGE WILDFIRE LOSS
1981-1985 INCLUSIVE

(AREA IN HECTARES)

Productivity Class	FOREST SECTIONS										
	Aspen Parkland	Mountain	Pineland	Lake Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
Productive Forest —											
Mature	47	203	302	1,857	420	180	1,533	426	478	1,282	6,728
Intermediate	149	676	592	9,198	1,057	185	3,506	5,368	3,345	3,769	27,845
Young	193	933	907	6,070	1,615	1,392	4,190	10,950	7,576	2,632	36,458
Total Productive	389	1,812	1,801	17,125	3,092	1,757	9,229	16,744	11,399	7,683	71,031
Forested Non-Productive	238	693	966	6,681	519	2,362	5,767	6,859	9,124	5,532	38,741
Non-Forested	748	1,373	2,078	1,085	1,952	845	461	954	1,148	356	11,000
TOTAL LAND AREA	1,375	3,878	4,845	24,891	5,563	4,964	15,457	24,557	21,671	13,571	120,772

TABLE 13
TEN-YEAR AVERAGE WILDFIRE LOSS
1976-1985 INCLUSIVE
BY FOREST SECTION AND SPECIES WORKING GROUP
FOR ALL LAND OWNERSHIPS AS REPORTED
MERCHANTABLE VOLUME

(IN CUBIC METRES)

March, 1986

Species Working Group	FOREST SECTIONS										
	Aspen Parkland	Mountain	Pineland	Lake Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
Pine	660	334,550	3,820	548,200	22,990	88,380	257,370	37,410	28,880	240,660	1,562,920
Spruce	8,460	258,070	20,420	428,780	102,510	36,560	547,940	49,530	140,250	391,710	1,984,230
Fir	10	6,030	950	28,120	2,280	120	2,730	—	2,110	9,430	51,780
Other Softwoods	940	2,090	6,750	25,840	2,340	1,050	1,330	110	610	550	41,610
Total Softwoods	10,070	600,740	31,940	1,030,940	130,120	126,110	809,370	87,050	171,850	642,350	3,640,540
Poplar	5,610	188,400	28,780	237,360	216,720	9,240	138,350	990	34,470	73,710	933,630
Other Hardwoods	1,130	13,020	3,480	24,010	10,510	1,530	22,770	3,030	5,410	19,460	104,350
Total Hardwoods	6,740	201,420	32,260	261,370	227,230	10,770	161,120	4,020	39,880	93,170	1,037,980
TOTAL	16,810	802,160	64,200	1,292,310	357,350	136,880	970,490	91,070	211,730	735,520	4,678,520

TABLE 14
LAST FIVE-YEAR AVERAGE WILDFIRE LOSS
1981-1985 INCLUSIVE
BY FOREST SECTION AND SPECIES WORKING GROUP
FOR ALL LAND OWNERSHIPS AS REPORTED
MERCHANTABLE VOLUME

(IN CUBIC METRES)

March, 1986

Species Working Group	FOREST SECTIONS										
	Aspen Parkland	Mountain	Pineland	Lake Winnipeg East	Interlake	Saskatchewan River	Highrock	Churchill River	Nelson River	Hayes River	Total
Pine	10	630	2,470	409,270	6,200	15,910	104,910	58,130	42,050	157,060	796,640
Spruce	1,760	5,170	22,650	254,290	21,400	8,890	279,260	89,990	155,510	239,170	1,078,090
Fir	20	50	1,260	19,030	2,070	70	1,230	—	2,470	5,830	32,030
Other Softwoods	1,200	800	6,210	20,090	2,210	80	680	190	970	520	32,950
Total Softwoods	2,990	6,650	32,590	702,680	31,880	24,950	386,080	148,310	201,000	402,580	1,939,710
Poplar	7,190	33,010	33,840	177,510	60,600	3,960	94,420	1,660	39,910	42,900	495,000
Other Hardwoods	1,370	1,660	4,590	18,630	3,230	720	12,600	5,120	7,370	12,940	68,230
Total Hardwoods	8,560	34,670	38,430	196,140	63,830	4,680	107,020	6,780	47,280	55,840	563,230
TOTAL	11,550	41,320	71,020	898,820	95,710	29,630	493,100	155,090	248,280	458,420	2,502,940

TABLE 15
WILDFIRE LOSSES BY AREA

(Area in Hectares)

Forest Zone
All ownerships
All reported fires

Forest Section	Year	Productive Forest Land				Forested Non-Productive	Non-Forested	Total Land
		Mature	Intermediate	Young	Total			
"0"	1976	—	68	2,375	2,443	—	9,039	11,482
	1977	—	73	146	219	1,264	18,807	20,290
	1978	319	205	823	1,347	895	560	2,802
	1979	—	1	—	1	4	181	186
	1980	3	783	1,430	2,216	1,086	9,905	13,207
	1981	57	428	352	837	835	1,970	3,642
	1982	14	7	51	72	37	56	165
	1983	3	20	5	28	24	336	388
	1984	163	283	537	983	296	1,360	2,639
	1985	—	5	18	23	—	19	42
10-year total		559	1,873	5,737	8,169	4,441	42,233	54,843
10-year average		56	187	574	817	444	4,223	5,484
Last 5-year total		237	743	963	1,943	1,192	3,741	6,876
Last 5-year average		47	149	193	389	238	748	1,375
"1"	1976	89	1,538	3,018	4,645	2,228	7,846	14,719
	1977	30	131	445	606	611	13,424	14,641
	1978	3	20	8	31	1	274	306
	1979	1	9	6	16	2	7	25
	1980	27,750	19,058	4,103	50,911	20,338	52,023	123,272
	1981	12	56	44	112	180	458	750
	1982	126	140	25	291	230	292	813
	1983	105	1,151	428	1,684	905	1,306	3,895
	1984	772	2,029	4,018	6,819	2,151	4,793	13,763
	1985	1	1	150	152	—	14	166
10-year total		28,889	24,133	12,245	65,267	26,646	80,437	172,350
10-year average		2,889	2,413	1,225	6,527	2,664	8,044	17,235
Last 5-year total		1,016	3,377	4,665	9,058	3,466	6,863	19,387
Last 5-year average		203	676	933	1,812	693	1,373	3,878

WILDFIRE LOSSES BY AREA

(Area in Hectares)

Forest Zone
All ownerships
All reported fires

Forest Section	Year	Productive Forest Land				Forested Non-Productive	Non-Forested	Total Land
		Mature	Intermediate	Young	Total			
"2"	1976	481	1,446	3,800	5,727	2,581	11,945	20,253
	1977	74	389	337	800	437	1,593	2,830
	1978	1	5	11	17	44	331	392
	1979	5	22	48	75	11	147	233
	1980	349	1,111	1,136	2,596	1,738	3,639	7,973
	1981	1,089	1,477	1,375	3,941	2,056	4,722	10,719
	1982	66	260	256	582	414	855	1,851
	1983	69	146	225	440	151	664	1,255
	1984	275	1,054	2,344	3,673	2,055	3,910	9,638
	1985	10	23	334	367	157	238	762
10-year total		2,419	5,933	9,866	18,218	9,644	28,044	55,906
10-year average		242	593	987	1,822	965	2,804	5,591
Last 5-year total		1,509	2,960	4,534	9,003	4,833	10,389	24,225
Last 5-year average		302	592	907	1,801	966	2,078	4,845
"3"	1976	3,411	14,731	8,660	26,802	6,509	3,215	36,526
	1977	166	438	888	1,492	232	103	1,827
	1978	17	138	25	180	374	71	625
	1979	2,720	7,919	3,790	14,429	4,412	487	19,328
	1980	23,440	40,236	31,915	95,591	33,942	6,251	135,784
	1981	899	2,262	240	3,401	2,558	88	6,047
	1982	130	154	48	332	76	32	440
	1983	6,795	34,296	21,806	62,897	22,795	4,718	90,410
	1984	1,434	9,098	8,230	18,762	7,935	551	27,248
	1985	27	181	26	234	40	35	309
10-year total		39,039	109,453	75,628	224,120	78,873	15,551	318,544
10-year average		3,904	10,945	7,563	22,412	7,887	1,555	31,854
Last 5-year total		9,285	45,991	30,350	85,626	33,404	5,424	124,454
Last 5-year average		1,857	9,198	6,070	17,125	6,681	1,085	24,891

WILDFIRE LOSSES BY AREA

(Area in Hectares)

Forest Zone
All ownerships
All reported fires

Forest Section	Year	Productive Forest Land				Forested Non-Productive	Non-Forested	Total Land
		Mature	Intermediate	Young	Total			
"4"	1976	708	4,597	5,681	10,986	910	10,260	22,156
	1977	543	38,618	10,593	49,754	13,070	49,116	111,940
	1978	710	116	52	878	173	816	1,867
	1979	13	35	71	119	715	41	875
	1980	155	1,706	28,990	30,851	974	12,736	44,561
	1981	200	203	1,620	2,023	119	1,003	3,145
	1982	220	691	293	1,204	142	1,539	2,885
	1983	62	417	155	634	179	869	1,682
	1984	1,553	3,822	5,811	11,186	2,055	6,155	19,396
	1985	66	149	196	411	101	197	709
10-year total		4,230	50,354	53,462	108,046	18,438	82,732	209,216
10-year average		423	5,035	5,346	10,804	1,844	8,273	20,921
Last 5-year total		2,101	5,282	8,075	15,458	2,596	9,763	27,817
Last 5-year average		420	1,057	1,615	3,092	519	1,952	5,563
"5"	1976	11	185	39	235	292	60	587
	1977	511	247	94	852	91	54	997
	1978	81	184	21	286	389	2	677
	1979	4,900	11,285	2,633	18,818	1,582	284	20,684
	1980	772	6,293	2,271	9,336	2,412	2,804	14,552
	1981	503	384	89	976	199	98	1,273
	1982	61	46	24	131	65	417	613
	1983	294	470	133	897	4	—	901
	1984	37	23	6,674	6,734	11,542	3,708	21,984
	1985	3	1	42	46	1	4	51
10-year total		7,173	19,118	12,020	38,311	16,577	7,431	62,319
10-year average		717	1,912	1,202	3,831	1,658	743	6,232
Last 5-year total		898	924	6,962	8,784	11,811	4,227	24,822
Last 5-year average		180	185	1,392	1,757	2,362	845	4,964

WILDFIRE LOSSES BY AREA

(Area in Hectares)

Forest Zone
All ownerships
All reported fires

Forest Section	Year	Productive Forest Land						
		Mature	Intermediate	Young	Total	Forested Non-Productive	Non-Forested	Total Land
"6"	1976	309	630	217	1,165	360	43	1,568
	1977	81	481	106	668	147	12	827
	1978	301	4,215	206	4,722	1,356	96	6,174
	1979	2,295	5,096	5,465	12,856	5,813	181	18,850
	1980	15,945	44,826	23,235	84,006	26,816	3,422	114,244
	1981	7,550	17,214	20,753	45,517	28,732	2,299	76,548
	1982	79	203	159	441	50	1	492
	1983	2	51	25	78	29	—	107
	1984	32	61	9	102	14	5	121
	1985	—	3	4	7	9	—	16
10-year total		26,594	72,789	50,179	149,562	63,326	6,059	218,947
10-year average		2,659	7,279	5,018	14,956	6,333	606	21,895
Last 5-year total		7,663	17,532	20,950	46,145	28,834	2,305	77,284
Last 5-year average		1,533	3,506	4,190	9,229	5,767	461	15,457
"7"	1976	12	341	51	404	400	65	869
	1977	—	—	2	2	29	—	31
	1978	—	15	80	95	25	—	120
	1979	614	4,912	3,042	8,568	5,061	2	13,631
	1980	—	81	2	83	8,109	—	8,192
	1981	1,630	25,059	53,559	80,248	32,463	4,666	117,377
	1982	317	1,147	669	2,133	1,063	52	3,248
	1983	58	20	31	109	63	3	175
Except M F U '76	1984	2	68	30	100	21	—	121
	1985	121	548	463	1,132	684	49	1,865
10-year total		2,754	32,191	57,929	92,874	47,918	4,837	145,629
10-year average		275	3,219	5,793	9,287	4,792	484	14,563
Last 5-year total		2,128	26,842	54,752	83,722	34,294	4,770	122,786
Last 5-year average		426	5,368	10,950	16,744	6,859	954	24,557

WILDFIRE LOSSES BY AREA

(Area in Hectares)

Forest Zone
All ownerships
All reported fires

Forest Section	Year	Productive Forest Land			Total	Forested Non-Productive	Non-Forested	Total Land
		Mature	Intermediate	Young				
"8"	1976	130	122	432	684	115	14	813
	1977	2,056	855	211	3,122	1,762	67	4,951
	1978	524	1,564	157	2,245	1,648	60	3,953
	1979	13	96	23	132	68	7	207
	1980	1,594	2,397	1,295	5,286	2,270	566	8,122
	1981	2,247	15,344	33,365	50,956	43,613	5,540	100,109
	1982	3	48	837	888	647	102	1,637
	1983	3	7	15	25	5	1	31
	1984	23	545	3,005	3,573	590	15	4,178
	1985	114	783	656	1,553	763	81	2,397
10-year total		6,707	21,761	39,996	68,464	51,481	6,453	126,398
10-year average		671	2,176	4,000	6,847	5,148	645	12,640
Last 5-year total		2,390	16,727	37,878	56,995	45,618	5,739	108,352
Last 5-year average		478	3,345	7,576	11,399	9,124	1,148	21,671
"9"	1976	434	2,774	3,050	6,258	7,653	787	14,698
	1977	8,181	20,198	15,107	43,486	21,867	1,785	67,138
	1978	542	2,346	1,763	4,651	5,065	310	10,026
	1979	388	1,446	1,032	2,866	5,158	118	8,142
	1980	4,149	11,302	7,724	23,175	20,041	1,171	44,387
	1981	5,836	16,298	10,192	32,326	22,888	1,396	56,610
	1982	175	1,059	978	2,212	1,055	36	3,303
	1983	79	82	11	172	130	10	312
	1984	219	593	522	1,334	698	90	2,122
	1985	102	811	1,459	2,372	2,886	249	5,507
10-year total		20,105	56,909	41,838	118,852	87,441	5,952	212,245
10-year average		2,010	5,691	4,184	11,885	8,744	595	21,224
Last 5-year total		6,411	18,843	13,162	38,416	27,657	1,781	67,854
Last 5-year average		1,282	3,769	2,632	7,683	5,532	356	13,571

WILDFIRE LOSSES BY AREA

(Area in Hectares)

Forest Zone
All ownerships
All reported fires

Forest Section	Year	Productive Forest Land			Total	Forested Non-Productive	Non-Forested	Total Land
		Mature	Intermediate	Young				
Manitoba	1976	5,585	26,441	27,323	59,349	21,048	43,274	123,671
	1977	11,642	61,430	27,929	101,001	39,510	84,961	225,472
	1978	2,498	8,808	3,146	14,452	9,970	2,520	26,942
	1979	10,949	30,821	16,110	57,880	22,826	1,455	82,161
	1980	74,157	127,793	102,101	304,051	117,726	92,517	514,294
	1981	20,023	78,725	121,589	220,337	133,643	22,240	376,220
	1982	1,191	3,755	3,340	8,286	3,779	3,382	15,447
	1983	7,470	36,660	22,834	66,964	24,285	7,907	99,156
	1984	4,510	17,576	31,180	53,266	27,357	20,587	101,210
	1985	444	2,505	3,348	6,297	4,641	866	11,824
10-year total		138,469	394,514	358,900	891,883	404,785	279,729	1,576,397
10-year average		13,846	39,450	35,892	89,188	40,479	27,973	157,640
Last 5-year total		33,638	139,221	182,291	355,150	193,705	55,002	603,857
Last 5-year average		6,728	27,845	36,458	71,031	38,741	11,000	120,772